APES and MONKEYS

THEIR LIFE AND LANGUAGE

by R·L·GARNER

WITH INTRODUCTION BY
EDWARD EVERETT HALE

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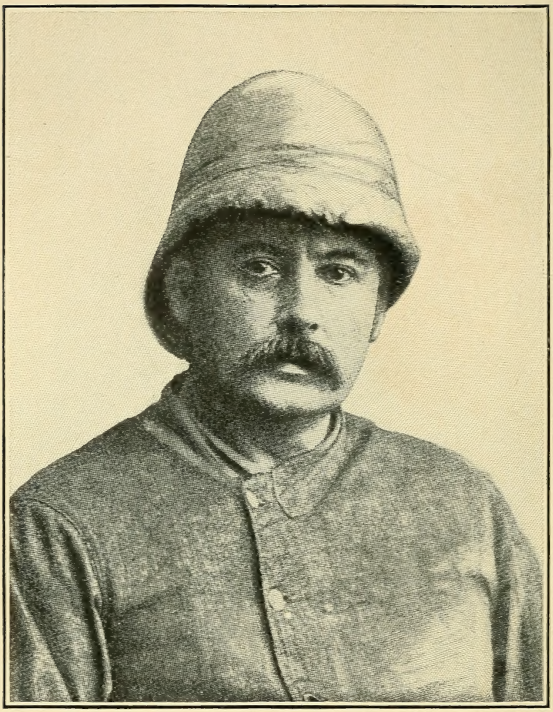

R. L. Garner.

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R. L. GARNER

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PREFACE

THIS volume is the natural product of many years devoted by the author to studying the speech and habits of monkeys. That naturally led him up to the study of the great apes. The matter contained in this work is chiefly a record of the tabulated facts gleaned from his special field of research. The aim in view is to convey to the casual reader a more correct idea than now prevails concerning the physical, mental, and social habits of apes and monkeys and to prepare him for a wider appreciation of animals in general.

The favorable conditions under which the writer has been placed, in the study of these animals in the freedom of their native jungle, have not hitherto been enjoyed by any other student of nature.

A careful aim to avoid all technical terms and scientific phraseology has been studiously adhered to, and the subject is treated in the simplest style consistent with its dignity. Tedious details are relieved by an ample supply of anecdotes taken from the writer's own observations. Most of the acts related are those of his own pets. A few of

them are of apes in a wild state. The author has carefully refrained from abstruse theories or rash deductions, but has sought to place the animals here treated of in the light to which their own conduct entitles them, allowing the reader to draw his own conclusions.

The author frankly confesses to his own belief in the psychic unity of all animate nature. Believing in a common source of life, a common law of living, and a common destiny for all creatures, he feels that to dignify the apes is not to degrade man but rather to exalt him.

Believing that a more perfect knowledge of these animals will bring man into closer fellowship and deeper sympathy with nature, and with an abiding trust that it will widen the bounds of humanity and cause man to realize that he and they are but common links in the one great chain of life, the author gives this work to the world. When once man is impressed with the consciousness that in some degree, however small, all creatures think and feel, it will lessen his vanity and ennoble his heart.

THE AUTHOR

CONTENTS

PAGE

INTRODUCTION xi

CHAPTER I

Monkeys, Apes, and Men — Comparative Anatomy — Skulls — The Law of Cranial Projection 1

CHAPTER II

Early Impression — What is Speech? — First Efforts — The Phonograph — The First Record of Monkey Speech — Monkey Words — Phonetics — Human Speech and Monkey Speech 12

CHAPTER III

Monkey Friends — Jokes — The Sound of Alarm — Jennie 24

CHAPTER IV

Monkey Ethics — Sense of Color — Monkeys Enumerate — First Principles of Art 30

CHAPTER V

Pedro's Speech Recorded — Delivered to Puck through the Phonograph — Little Darwin Learns a New Word 38

CHAPTER VI

Five Little Brown Cousins: Mickie, McGinty, Nemo, Dodo, and Nigger — Nemo Apologizes to Dodo 45

CHAPTER VII

PAGE

Meeting with Nellie — Nellie was my Guest — Her Speech and Manners — Helen Keller and Nellie — One of Nellie's Friends — Her Sight and Hearing — Her Toys and how She Played with Them 52

CHAPTER VIII

Caged in an African Jungle — The Cage and its Contents — Its Location — Its Purpose — The Jungle — The Great Forest — Its Grandeur — Its Silence 60

CHAPTER IX

Daily Life and Scenes in the Jungle — How I Passed the Time — What I Had to Eat — How it was Prepared — How I Slept — My Chimpanzee Companion 73

CHAPTER X

The Chimpanzee — The Name — Two Species — The Kulu-Kamba — Distribution — Color and Complexion 85

CHAPTER XI

Physical Qualities of the Chimpanzee — His Social Habits — Mental Characteristics 92

CHAPTER XII

The Speech of Chimpanzees — A New System of Phonetic Symbols — Some Common Words — Gestures 108

CHAPTER XIII

Moses — His Capture — His Character — His Affections — His Food — His Daily Life — Anecdotes of Him 117

CHAPTER XIV

The Character of Moses — He Learns a Human Word — He Signs His Name to a Document — His Illness — Death 134

CHAPTER XV

PAGE

Aaron — His Capture — Mental Powers — Acquaintance with Moses — His Conduct during Moses' Illness 144

CHAPTER XVI

Aaron and Elisheba — Their Characteristics — Anecdotes — Jealousy of Aaron 153

CHAPTER XVII

Illness of Elisheba — Aaron's Care of Her — Her Death — Illness and Death of Aaron 167

CHAPTER XVIII

Other Chimpanzees — The Village Pet — A Chimpanzee as Diner-Out — Notable Specimens in Captivity 175

CHAPTER XIX

Other Kulu-Kambas — A Knotty Problem — Instinct or Reason — Various Types 202

CHAPTER XX

The Gorilla — His Habitat — Skeleton — Skull — Color — Structural Peculiarities 211

CHAPTER XXI

Habits of the Gorilla — Social Traits — Government — Justice — Mode of Attack — Screaming and Beating — Food 231

CHAPTER XXII

Othello and Other Gorillas — Othello and Moses — Gorilla Visitors — Gorilla Mother and Child — Scarcity of Gorillas — Unauthentic Tales 247

CHAPTER XXIII

PAGE

Other Apes — The Apes in History — Habitat — The Orangs — The Gibbon 266

CHAPTER XXIV

The Treatment of Apes in Captivity — Temperature — Building — Food — Occupation 278

INDEX 287

LIST OF ILLUSTRATIONS

PAGE

PORTRAIT OF R. L. GARNER . . . . . Frontispiece

PELVIS OF THE CHIMPANZEE 5

DIAGRAM NO. 1 (CRANIO-FACIAL ANGLES) 8

DIAGRAM NO. 2 (CRANIO-FACIAL ANGLES) 9

DIAGRAM NO. 3 (CRANIO-FACIAL ANGLES) 9

DIAGRAM NO. 4 (CRANIO-FACIAL ANGLES) 10

MONKEY LEARNING TO COUNT 33

NATIVE VILLAGE AT GLASS GABOON 61

A NATIVE CANOE 63

THE EDGE OF THE JUNGLE 65

IN THE JUNGLE 67

WAITING AND WATCHING IN THE CAGE 69

STARTING FOR A STROLL 74

A PEEP AT MY CAGE 75

PREPARING FOR THE NIGHT 83

KANJO NTYIGO-CHIMPANZEE DANCE 103

NATIVE CARRIER BOY 119

A STROLL IN THE JUNGLE — MR. GARNER, MOSES, AND NATIVE BOY 127

ELISHEBA AND AARON 169

NATIVE VILLAGE, INTERIOR OF NYANZA 176

CONSUL II RIDING A TRICYCLE 194

PAGE

Mr. Crowley, Late of the New York Zoölogical Garden . 199

Skulls of Gorillas — Front View 220

Skulls of Gorillas — Profile View 220

Natives Skinning a Gorilla 222

Young Gorilla Walking 226

Sally Jones (Young Gorilla) Caught Napping 243

Gorilla Mother with Young 257

Plain and Edge of Forest in the Country of the Apes . 271

Young Orangs 275

INTRODUCTION

Mr. Garner's book needs no introduction. By this I mean that I think that no intelligent person will open into it without wishing to read more and more. The book is its own introduction.

I write these lines, not so much to explain what the book is as to introduce Mr. Garner himself to people who do not know him, that they may thank him for the step forward which he has made and is making.

It is hardly half a century since one of the highest authorities in the Church of England told us that animals have no rights whatever, and that men should be kind to them simply for the reason that it was desirable that men should improve their own characters. If I tied a tin pail to a dog's tail, I injured my character. If I patted the dog on the head, I improved my character. "See all things for my use," — this was really the motto of a book of ethics somewhat famous in its day.

Happily the world has lived beyond such a crusty selfishness as this, — happily, perhaps, not for mankind only. Happily for our thought of the universe in which we live, men have found out that they have duties towards animals as they have duties towards each other, — say that in a certain sense we are the gods of animals, to whom they

look up as we look up to our Father in heaven; let us, at least, treat them as we would be treated.

How shall we do this? How shall we come at some understanding of their life, of their needs, of their hopes and fears? How can we be just to them?

Mr. Garner has set to work in this business with systematic perseverance and a real comprehension of the position. Of all the inferior animals, these monkeys and apes, it seems, have more machinery for thought, if I may use so clumsy an expression, than have any others. The book will tell the reader why it is easier to come at some notion of the language of the Capuchin monkey than it is to apprehend the method by which the horse communicates with the horse, or the blackbird with the blackbird. With scientific precision, Mr. Garner has availed himself of this fact, is availing himself of it at the moment when I write. He has selected animals, which are certainly animals and not men. He has selected these as those where his study can be precise, and where it is most easy to arrive at correct conclusions; and it is not in the study merely of speech and of listening; it is study of what I may call the principles which underlie animal life, to which this explorer in a new field has devoted himself. The reader of this book will understand why it is that he gives up years of life to such society as that his dear little Moses gave him; why he plunges into

> The multitudinous abyss
> Where nature joys in secret bliss,

that he may come at some of the secrets of those beings who are at home there.

Mr. Garner does not ask himself, and I do not propose that the reader shall ask, what changes may ensue in the trade of the world from his discovery. He does not pretend that there will be more palm oil, or more Manila hemp, because we understand monkeys and apes and gorillas and orangs better than our fathers. But he believes, and those who have followed him with sympathy believe, that we shall know more of ourselves, that we shall know more of the universe in which we live, that we shall know more of God, the I Am, who is the life of this universe, than our fathers knew, if this brave explorer is able to carry on farther such investigations as this book describes.

May his life be prolonged for such study; it has been long enough now for us to owe him a large debt of gratitude for the lifelong sacrifice and determination with which he has prosecuted these studies thus far.

EDWARD E. HALE.

October 26, 1900.

APES AND MONKEYS

APES AND MONKEYS

CHAPTER I

Monkeys, Apes, and Men — Comparative Anatomy — Skulls — The Law of Cranial Projection

FROM time immemorial monkeys have been subjects of interest to the old and to the young. The wise and the simple are alike impressed with their human looks and manners. There are no other creatures that so charm and fascinate the beholder as do these little effigies of the human race. With equal delight, patriarchs and children watch their actions and compare them to those of human beings. Until recent years monkeys have served to amuse rather than to instruct the masses. But now that the search-light of science is being thrown into every nook and crevice of nature, human interest in them is greatly increased and the savants of all civilized lands are wrestling with the problem of their possible relationship to mankind. With the desire of learning as much as possible concerning their habits, faculties, and mental resources, they are being studied from every point of view, and each characteristic is seriously compared in detail to the corresponding one in man. Concurrent with this desire, we shall note the chief points of resemblance and of difference between them.

In order to appreciate more fully the value of the lessons to be drawn from the contents of this volume we must know the relative planes that men and monkeys occupy in the scale of nature. Within the limits of this work, however, we can only compare them in a general way. Since monkeys differ so widely among themselves, it is evident that all of them cannot in the same degree resemble man; and as the degree of interest in them is approximately measured by their likeness or unlikeness to man, it is apparent that all cannot be of equal interest as subjects of comparative study. But since each forms an integral part of one great scale, each one is equally important in tracing out the continuity of the order to which all belong.

The vast family of simians has perhaps the widest range of types of any single family of animals. Beginning with the great apes, which in size, form, and structure so closely resemble man, we descend the scale until it ends in the lemurs, which are almost on the level of rodents. The descent is so gradual that it is difficult to draw a line of demarcation at any point between the two extremes. There is now, however, an effort being made to separate this family into smaller and more distinct groups; but the lines between them are not sharply drawn, and the literature of the past has a tendency to retard the effort. But we shall not here assume to discuss the problems with which zoölogy may in the future have to contend; we shall accept the current system of classification and proceed along that line.

In the language of the masses all the varied types that belong to the simian family are known as *monkeys*. This

term is so broad in its application as to include many forms which are not to be considered in this work, and many of them should be known under other names. Some of these resemble man more than they resemble each other. By the word *monkey*, we mean to refer only to those of the simian tribe that have long tails and short faces, while the word *baboon* refers only to the dog-like forms having tails of medium length and long projecting faces. The term *ape* will be applied only to those having no tails at all. While all of these animals are called simians, they are not all monkeys.

The simian family is divided into two great classes, known as *old world monkeys* and *new world monkeys*. The chief point of distinction is in the structure of the nose. All of the monkeys belonging to the old world stock have long, straight noses with vertical nostrils, separated by a narrow thin wall, or septum, and from this fact they are technically known as *catarrhini*. The new world stock have short, flat noses with oblique nostrils set wide apart, and on this account they are known as *platyrrhini*. There are many other marks that distinguish genera and species, but these are the two grand divisions of the simian race. We shall not here attempt to classify the many genera and species of either of these divisions. But we shall point out some of the most salient anatomical features of men and apes, and then those of monkeys.

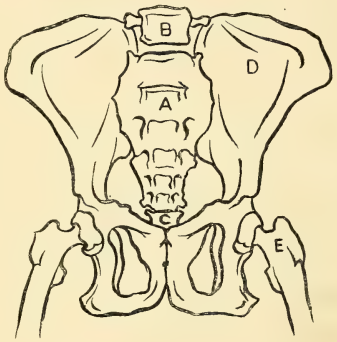
Among the simians, erroneously called monkeys, are the four kinds that constitute the anthropoid, or manlike, group of apes. In certain respects they differ from each other as much as any one of them differs from man. The

four apes here alluded to and named in the order of their physical resemblance to man are: the gorilla, the chimpanzee, the orang, and the gibbon; but if placed in the order of their mental and social characteristics they stand as follows: the chimpanzee, which is next to man, the gorilla, the gibbon, and, last, the orang. It is possible, however, that it may yet be found that the gibbon is intellectually the highest of this group.

As the skeleton is the framework of the physical structure, it will serve for the basis upon which to build up the comparisons; and as, on the whole, the chimpanzee is the nearest approach to man, we select and use him as the standard of comparison. The skeleton of the chimpanzee may be said to be an exact duplicate of that of man. The assertion, however, should be qualified by a few facts of minor importance; but since they are facts, they should not be ignored. The general plan, purpose, and structure of the skeletons of man and chimpanzee are the same. There is no part of the one which is not duplicated in the other, and there is no function discharged by any part of the one that is not discharged by a like part of the other. The chief point in which they differ is in the structure of one bone. To this we shall pay special attention.

Near the base of the spinal column is a large compound bone, known as the *sacrum*. It is a constituent part of the column, but in its singular form and structure it differs slightly from the corresponding bone in man. The general outline of this bone has the form of an isosceles triangle. It fits in between the two large bones that spread out towards the hips and articulate with the thigh bones. In

man, about halfway between the center and the edge along each side is a row of four nearly round holes. Across the surface of the bone is a dim, transverse line, or seam, between each pair of holes, from which it is seen that five smaller sections of the spinal column have anchylosed, or grown together, to form the sacrum. The holes coincide with the open spaces between the transverse processes, or lateral projections, of the other bones of the spinal column above this. In the chimpanzee this bone has the same general form as in man, except that instead of four holes in each row it has five. They are connected by transverse seams the same as in man, thus indicating that six of the vertebræ, instead of five, are united. In compensation for this, the ape has one vertebra less in the portion of the spinal column just above, which is called the lumbar. In man there are five free lumbar vertebræ and five united sections of the sacrum, while in the ape there are only four free lumbar vertebræ and six united sections forming the sacrum. But regarding each section of the sacrum as a separate bone and counting the whole number of vertebræ in the spinal column there are found to be exactly the same number in each.



Pelvis of the Chimpanzee

A, sacrum; B, fourth lumbar vertebra; C, coccyx; D, ilium or hip bone; E, femur or thigh bone.

Some writers have put great stress upon the difference

in the structure of this bone, and have pointed out as impossible a common origin for man and ape; but one fact remains to be explained, and that is, that while these appear to be fixed and constant characteristics of man and ape there are many exceptions known in human anatomy. In the splendid collection of human spinal columns in the museum of the Harvard Medical School are no less than eighteen specimens of the human sacrum having six united segments; and I have found in the collections of various museums a total of more than thirty others. These facts show that this characteristic is not confined to the ape. It is true that in some of these abnormal specimens there remain five *lumbar* vertebræ. This seems to indicate that this portion of the spinal column is the most susceptible to variation. I have never seen an instance, however, of variation in the sacrum of the chimpanzee. In this respect he appears to be, in his structural type, more constant than man.

One reason why this bone is so formed in the ape is this. At that point the greatest weight and strain are laid upon the spinal column, and the crouching habit of the animal has a tendency to depress the lowest lumbar vertebra between the points of the hip bones and thus arrest its lateral movement. Since the flexure of this part is lessened, the cartilage that lies between the two segments becomes rigid and then ossifies. The erect posture of man allows more play in the region of the loins, and hence this motion prevents the two bones from uniting.

Another bone that may be said to vary somewhat is the sternum, or breastbone. It is the thin, soft bone to which

the ribs are joined in the front of the body. In the young of both man and ape it is a mere cartilage. This slowly ossifies as the animal matures. The process appears to begin at five different segments, the first nucleus appearing near the top. This bone never becomes quite perfect either in man or ape. It always remains somewhat porous, and even in advanced age the outline of the lower portion is not defined by a smooth, sharp line, but is irregular in contour and merges into the cartilages that unite the ribs to it.

In an adult human being this bone is usually found to be in two segments, while in the ape it varies. In some specimens it is the same as in man. In others it is sometimes found to be in three, four, or even five sections. But the sternum in each is regarded as one bone, and is developed from one continuous cartilage. The separate parts are not considered distinct bones. The reason, no doubt, that this bone remains in separate sections in the ape is due to the stooping habit of the animal, by which the part is constantly flexed and alternately straightened, and therefore discharges its function better than it otherwise could.

With these trifling exceptions the skeletons of man and ape may be truly said to be exact counterparts of each other, having the same number of bones, of the same general model, arranged in the same order, articulated in the same manner, and performing the same functions. In other words, the corresponding bone in each is the same in design and purpose. The frame of the ape is, as a rule, more massive in its proportions than that of man; but

while this is true of certain kinds of apes, the reverse is true of others.

In man the sacrum is more curved in the plane of the hips than it is in the ape, while the bones of the digits in man are less curved. The arms of man are shorter than the legs, while in the ape the comparative length of these features is reversed. In the cranial types it is readily seen that the skull of man is more spherical and the face almost or quite vertical. The skull of the ape is elongated and the chin projects. Thus his face is at an angle from a vertical line. These facts deserve more notice than the mere mention.

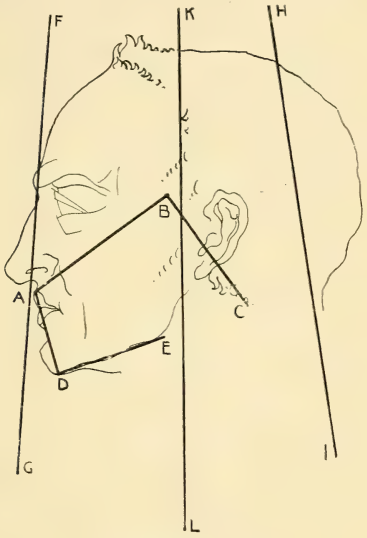


Diagram No. 1

In the scheme of nature there appears to be a fixed law of cranial projection. The cranio-facial angle in man, ABC (as shown in diagram No. 1), is a right angle, and the gnathic angle ADE is approximately the same. The line FG represents the axis of the facial plane, and the line HI is the cervical axis. Reckoned from the vertical line KL it will be seen that the angles formed by the facial axis FG and the cervical axis HI are about the same on opposite sides of the vertical line KL. It will be

observed that these lines and angles are those of man whose posture is upright. In diagram No. 2 it will be seen that both the facial axis FG and the cervical axis HI form a greater angle from the vertical line than in man. It will also be seen that the cranio-facial angle ABC is increased by about one-half of the angle of the facial axis GML. The gnathic angle ADE is increased in about the same degree. These are the lines and angles of the anthropoid apes.

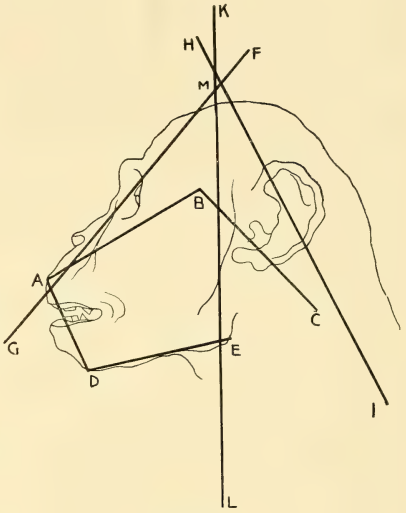


Diagram No. 2

Diagram No. 3 represents the lines and angles of monkeys, in which the angles are widened in a degree measured by the tendency of the animal to assume a horizontal posture.

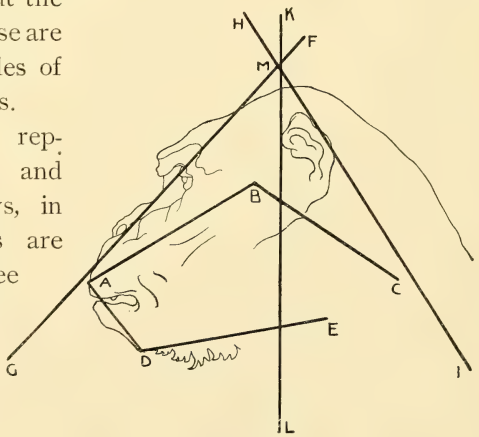


Diagram No. 3

In diagram No. 4 we have the lines and angles of reptiles. In these it will be seen that the facial axis FG and the cervical axis HI are almost horizontal. The cranio-facial and gnathic angles have been correspondingly widened.

Man standing erect has the greatest range of vocal powers of any animal. He also has the greatest control over them. In vocal range the apes come next in order.

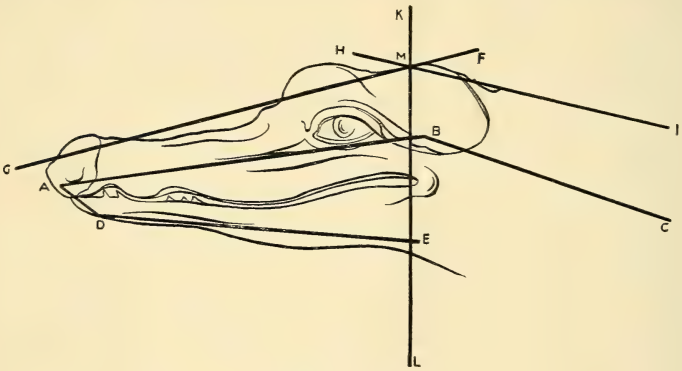


Diagram No. 4

As we descend the scale from man through apes, monkeys, lemurs, and lemuroids, ultimately ending in the reptilian forms, we find the vocal powers restricted in scope and degraded in quality, until in the lowest reptiles they are lost in a mere hiss.

Concurrent with the variations described, the longitudinal, vertical, and transverse axes of the brain also change their proportion in a like degree. The angles formed by the plane of the vocal cords with the axis of the larynx undergo a corresponding change. A just deduction from

these facts is, that the gnathic index ADE is a true vocal index.

This rough outline of the law of cranial projection does not purport to be a full treatment of the many lines and angles correlated to the powers of speech, but the suggestions may lead the craniologist into new fields of thought.

CHAPTER II

Early Impression — What is Speech — First Efforts — The Phonograph — The First Record of Monkey Speech — Monkey Words — Phonetics — Human Speech and Monkey Speech

AMONG the blue hills and crystal waters of the Appalachian Mountains, remote from the artificialities of the great cities, the conditions of life under which I grew up were more primitive and less complex than they are in the busy centers of vast population. There nature was the earliest teacher of my childhood, and domestic animals were among my first companions. Among such environments my youth was passed, and among them I first conceived the idea that animals talk. As a child, I believed that all animals of the same kind could understand each other, and I recall many instances in which they really did so.

My elders said that animals could communicate with each other, but denied that they could talk. As a boy, I could not forego the belief that the sounds they used were speech; and I still ask: In what respect are they not speech? This question leads us to ask another.

What is speech? Any oral sound, voluntarily made, for the purpose of conveying a preconceived idea from the mind of the speaker to the mind of another, is speech. Any oral sound so made and so discharging this function

in the animal economy is speech. It is true that the vocabularies of animals, when compared with those of man, are very limited; but the former are none the less real. The conception in the mind of an animal may not be so vivid as it is in the human mind, but the same conception is not always equally clear in two human minds. The fact of its being vague does not lessen its reality.

Expression is the materialized form of thought, and speech is one mode of expression. Every animal is capable of expressing any thought that he is capable of conceiving, and such expression will be found to be as distinct as the thought which it expresses. It is inconsistent with every view of nature to suppose that any creature is endowed with the faculty of thought and forbidden the means of expressing it.

It is true that there are some oral sounds which express emotion — such as pain or pleasure. These may not properly be called speech, although from them we may infer the state of mind attending them; but while they are not truly speech, they appear to be the cytula from which speech is developed. While emotions are not voluntary, they do not exist apart from mind. They are produced by external causes, and the line of demarcation which separates them from more definite forms of thought is a vague and wavering one. Thought may be involuntary, but expression arises from desire, and this is the sole motive of speech.

It is not the purpose of this work to discuss the problems of psychology, except to state the grounds upon which we base the claim that animals possess the faculty

of speech; but this is intended as a record of observed facts and from them the psychologist may make his own deductions.

With the ever-present belief that animals could talk to each other, I observed from year to year certain things which tended to confirm it. About sixteen years ago an instance occurred which forever removed from my mind all doubt or wavering. Prior to that time I had observed that animals of the higher orders appeared to have the better types of speech and, concurrent with this belief, I tabulated many facts. In 1884 I made a visit to the Cincinnati Zoölogical Garden, where I was deeply impressed with the conduct of a school of monkeys occupying a cage which also contained a large mandrill. This savage baboon was an evident source of terror to the smaller inmates of the cage. A brick wall separated the cage into two compartments. The one was intended for summer and the other for winter occupancy. Through this wall was a small doorway, large enough to admit the passage of the occupants. I observed that two or three of the monkeys kept continual watch over the conduct of the baboon and reported to the other monkeys every movement that he made. When he was lying still, the monkeys passed back and forth without fear, but the instant he rose to his feet or gave any sign of disquiet the fact was promptly reported by the monkeys on watch to those in the adjoining compartment, and they acted in accordance with the warning. I was not able to determine the exact thing they reported, but the nature of the report was evident, and I resolved to learn more fully its meaning.

After spending some hours watching their conduct and listening to the sound which controlled it, I became convinced that what they said was sufficiently definite to guide the actions of those to whom it was addressed. In fact I should have been willing to intrust my own safety to those warnings. After a brief study of those sounds I was able to understand the attitude of the baboon towards his neighbors; and while the warning contained no elaborate detail that I could understand, the nature of his actions was made evident. I observed that a certain sound of warning caused them to act in a certain way, and a certain other sound caused them to act differently.

From this start I determined to learn the speech of monkeys. I did not suspect that the task would be so great as it has proved to be. I did not foresee the difficulties that have since become apparent. Year by year, as new ideas came to me, new barriers arose and the horizon continually widened. Yet I was not discouraged at the poor success of my first efforts. From time to time I visited the various collections of monkeys in this country and even availed myself of those found with traveling shows, hand organs, and elsewhere.

After some years of casual study it occurred to me that the phonograph would be a great aid in solving this problem. It would enable me to make more accurate comparisons of the sounds made by different monkeys; and after duly considering the matter I went to Washington and made my purpose known to Dr. Baker, of the Smithsonian Institution. This at first evoked from him a smile, but after explaining the means by which it was hoped to

accomplish the end he looked upon the novel feat as a new step in the science of speech.

Having secured a phonograph, I repaired to the animal house then adjoining the Smithsonian Institution. At that time there were but two live monkeys there, and these were the nucleus around which has grown the present National Zoölogical Park at Washington. These two monkeys were of different species, but had for some time occupied the same cage. I had the female removed from the cage and carried into another room. Then the phonograph was placed near her cage, and by various means she was induced to utter a few sounds which were recorded upon the wax cylinder. The machine was then placed near the cage containing the male and the record repeated to him. His conduct plainly showed that he recognized the sound and understood the nature of it. He searched the horn from which the sounds proceeded and appeared to be perplexed at not finding the monkey that had made them. He traced the sound to its proper source, but, failing to find his mate, he thrust his arm into the horn and felt around the sides of it in the vain hope of finding her. The expression of his face was a study worthy of the best efforts of the physiognomist.

Then a few sounds of his voice were recorded upon another cylinder and were delivered to the female, who showed signs of recognition; but as this record was very indistinct it did not evoke from her the interest which the other had evoked from him.

This is doubtless the first instance in the history of speech that an attempt was ever made to reduce the

speech of monkeys to record. While this first experiment was crude and the results were not conclusive, it pointed in the right direction and it inspired to further efforts to find the fountain head from which flows the great river of human speech.

Some critic at that time declared that this experiment could be of no scientific value, because the monkey had been provoked to make the sounds recorded, and the sounds so evoked were only sounds of anger or profanity. It was not a matter of concern to me whether these words were moral or profane, so long as they were speech sounds of a monkey and were so recognized by other monkeys. If a monkey uses profanity, he doubtless has some other forms of speech.

Shortly after this experiment I went to Chicago and made a record of a brown *Cebus* monkey. This record was of a sound most commonly used by that species. I had no exact idea as to its meaning, but its frequent use caused me to select it as one of their most important words. Having secured this, I returned to New York. There I selected a monkey of the same species and to him reproduced the record. He instantly gave signs of understanding it and replied to it. Again and again this sound was reproduced and he repeatedly answered it. He looked at the horn from which it came, then at the moving instrument, and drew back from them. But as the sound continued to proceed from the horn his interest seemed to awaken. He approached the horn and cautiously peeped into it. The sound was repeated. He thrust his arm into the horn and peeped around the outside to see if he

had scared the monkey out. Failing to find him, he again retired from the horn, but responded to the sounds. He appeared to regard the thing with a kind of superstition. He seemed conscious of the fact that there should be a monkey there, but failing to find it he evinced suspicion. I do not know to what extent he regarded this as a spook, but he evidently realized that it was some unusual thing.

In this experiment certain facts may be observed. The record delivered to him nothing but the cold, mechanical sound. The elements of gesture, etc., were entirely eliminated as factors in the problem, so that the monkey had nothing to interpret except the sound. This would indicate that the speech sound of a monkey as well as that of man carried with it a fixed and constant meaning. This conclusion has since been confirmed by ample and varied experiments with mechanical devices of many kinds.

Among the defects observed in this experiment was the fact that I had not provided a means of recording the sound made in reply to the record. Subsequently I secured another instrument to do this. In this manner I obtained a reply, and thus I had the two cylinders for comparison. In like manner I repeated the experiment of delivering the record with one machine and recording the reply with another, until I had secured records of the speech sounds of nearly all the monkeys in captivity in this country. Taking these records at my leisure, I carefully compared and studied them, until I was able to interpret nine sounds of the speech of the Capuchin

monkeys, and, incidentally, a few sounds of a great number of other species.

It is quite impossible to represent the sounds of monkey speech by any literal formula, and it is difficult to translate them into their exact equivalent of human speech; but, in order to convey some idea of the nature and scope of that speech, I shall describe a word or two. In the tongue of the brown Capuchin monkey the most important word somewhat resembles the word "who," uttered like "wh-oo-w." The phonetic effect is rich and musical. The vowel element which dominates it is a pure vocal "u." The radical meaning of this sound is food, which is the central thought of every monkey's life. It does not only mean food in the concrete sense, referring to the thing to be eaten, but it sometimes refers to the act of eating, in which sense it has the character of a verb. At other times it refers to the desire to eat or to the sensation of hunger, in which instance it may be said to have the character of an adjective. But grammatical values depend upon structure, and since the speech of monkeys is *monophrastic* it cannot truly be said to have grammatical form. All the sounds of this species, so far as I have seen, are monosyllables; and most of them contain but one distinct phonetic. I have therefore described them as "monophonetic." The word above described is sometimes used with the apparent purpose of expressing friendship, or something of that kind.

Another word which refers to drink, or liquid, begins with a faint guttural "ch," gliding through a sound resembling the French diphthong "eu," and ending with

a vanishing "y." The sound is used with reference to drink in much the same way as the other sound is used with reference to food.

So far I have not found any trace of the vowels "a," "e," "i," or "o," sounded long, but in one sound of alarm emitted under stress of great fear or in case of assault, the vowel element resembles short "i." This sound is uttered in a pitch about two octaves above a human female voice.

All of the sounds made by monkeys and, so far as I have observed, by other animals, refer to their natural physical wants. They are not capable of expressing intricate or abstract thoughts, for the animal himself has no such thoughts. Their simple modes of life do not require complex thoughts.

A striking point of resemblance between human speech and that of the simian is found in a word that "Nellie" (one of my pets) used in warning me of the approach of danger. It is not that sound elsewhere described as the alarm sound used in case of imminent danger. This sound is used in case of remote danger or in announcing something unusual. As nearly as can be represented by letters it resembles "e-c-g-k." With this word I have often been warned by these little friends. Nellie's cage occupied a place near my desk. At night she would always stay awake as long as the light was kept burning. Having always kept late hours myself, I did not violate the rule of my life in order to give her a good night's rest. About two o'clock one morning, when about to retire, I found Nellie wide awake. I drew a chair near her cage and sat watching her pranks. She tried to entertain me with bells

and toys. Without letting her see it, I tied a long thread to a glove and placed it in the corner of the room at a distance of several feet away. Holding one end of the string, I drew the glove obliquely across the floor. When I first tightened the string, which was drawn across one knee and under the other, the glove slightly moved. This her quick eye caught at the first motion. Standing almost on tiptoe, her mouth half open, she cautiously peeped at the glove. Then in a low undertone, verging on a whisper, she uttered the sound "e-c-g-k!" Every second or so she repeated it, at the same time watching to see whether or not I was aware of the approach of this goblin. Her actions were very human-like. Her movements were as stealthy as those of a cat. As the glove came closer and closer she became more and more demonstrative. When at last she saw the monster climbing the leg of my trousers she uttered the sound in a loud voice and very rapidly. She tried to get to the object. She evidently thought it was a living thing. She detected the thread with which the glove was drawn across the floor, but she seemed in doubt as to what part it played in the matter. Her eyes several times followed the thread from my knee to the glove, but I do not think she discovered what caused the glove to move. Having repeated this a few times, with about the same result each time, I relieved her anxiety by allowing her to examine the glove. She did this with marked interest for a moment and then turned away. I tried the same thing again, but failed to elicit from her the slightest interest after she had once examined the glove.

When Nellie first discovered the glove moving on the floor, she attempted to call my attention in a low tone. As the object approached she became more earnest and uttered the sound somewhat more loudly. When she discovered the monster — as she regarded it — climbing up my leg, she uttered the warning in a voice sufficiently loud for the distance over which the warning was conveyed. These facts indicate that her perception of sound was well defined. Her purpose was to warn me of the approaching danger without alarming the object against which the warning was intended. As the danger increased, the warning became more urgent. When she saw the danger at hand, she no longer concealed or restrained her alarm.

Nellie was an affectionate little creature. She hated to be left alone, even when supplied with toys and a superabundance of food. When she saw me put on my overcoat or take my hat, she foresaw that she would be left alone. Then she began to plead and beg and chatter. I often watched her through a small hole in the door. When quite alone, in perfect silence she played with her toys. Sometimes for hours together she did not utter a word. She was not an exception to the rule that monkeys do not talk when alone.

Although their speech is inferior to human speech, yet in it there is an eloquence that soothes and a meaning that appeals to the human heart.

Briefly stated, the speech of monkeys and human speech resemble each other in all essential points. The speech sounds of monkeys are voluntary, deliberate, and articulate. They are addressed to others with the evident pur-

pose of being understood. The speaker shows that he is conscious of the meaning which he desires to convey through the medium of speech. He awaits and expects a reply. If it is not given, the sound is repeated. The speaker usually looks at the one addressed. Monkeys do not habitually utter these sounds when alone. They understand the sounds made by others of their own kind. They understand the sounds when imitated by a human being, by a phonograph, or by other mechanical means. They understand the sounds without the aid of signs or gestures. They interpret the same sound in the same way at all times. Their sounds are made by their vocal organs and are modulated by the teeth, the tongue, the palate, and the lips. Their speech is shaded into dialects, and the higher forms of animals have higher types of speech than the lower ones. The higher types are slightly more complex and somewhat more exact in meaning than the lower ones. The present state of monkey speech appears to have been reached by development from lower forms. Each race or species of monkey has a form of speech peculiar to its kind. When caged together for a time they learn the meaning of each other's sounds, but seldom try to utter them. Their faculty of speech is commensurate with their mental and social status. They utter their speech sounds loud or soft as the condition requires, which indicates that they are conscious of the values. The more pronounced the gregarious habits of any species, the higher the type of speech it has. So far as I am able to discern, there is no intrinsic difference between the speech of monkeys and the speech of men.

CHAPTER III

Monkey Friends — Jokes — The Sound of Alarm — Jennie

A FEW years ago there lived in Charleston, S. C., a fine specimen of the brown Cebus. His name is Jokes. He was naturally shy of strangers, but on my first visit to him I addressed him in his native tongue, and he seemed to regard me very kindly. He ate from my hand and allowed me to handle and caress him. He watched me with evident curiosity, and invariably responded to the sound that I uttered in his own language. On one occasion I tried the effect of the peculiar sound of "alarm" or "assault" which I had learned from one of his species. It cannot be spelled or represented by letters. While he was eating from my hand I gave the peculiar, piercing note. He instantly sprang to a perch in the top of the cage, thence almost wild with fear he ran in and out of his sleeping apartment. As the sound was repeated his fears increased. No amount of coaxing would induce him to return to me or to accept from me any overtures of peace. I retired to the distance of a few feet from his cage, and his master finally induced him to descend from the perch; but he did so with great reluctance. I again gave the sound from where I stood, and it produced a similar result. The monkey gave out a singular sound in response to my efforts to appease him, but he refused to become reconciled.

After the lapse of eight or ten days I had not been able to reinstate myself in his good graces or to induce him to accept anything from me. At this juncture I resorted to harsher means of bringing him to terms; I threatened him with a rod. At first he resented this; but at length he yielded, and merely through fear he came down from his perch. When finally induced to approach, he placed the side of his head on the floor, put out his tongue, and uttered a plaintive sound having a slightly interrogative inflection. At first this act quite defied interpretation; but during the same period I was visiting a little monkey called Jack, and in him I found a clue to the meaning of this conduct. For strangers, Jack and I were very good friends. He allowed me many liberties, which the family assured me he had uniformly refused to others. On a certain visit to him he displayed his temper and made an attack upon me, because I refused to let go a saucer from which he was drinking milk. I jerked him up by the chain and slapped him; whereupon he instantly laid the side of his head on the floor, put out his tongue, and made just such a sound as Jokes had made on the occasion mentioned. It occurred to me that it was a sign of surrender. Subsequent tests confirmed this opinion.

Mrs. M. French Sheldon, in her journey through East Africa, shot a small monkey in a forest near Lake Charla. She graphically describes how the little fellow stood high up in the bough of a tree and chattered to her in a clear, musical voice until at the discharge of her gun he fell mortally wounded. When he was laid dying at her feet, he turned his bright little eyes pleadingly upon her as if

to ask for pity. Touched by his appeal, she took the little creature in her arms and tried to soothe him. Again and again he touched his tongue to her hand as if kissing it, and seemed to wish in the hour of death to be caressed by the hand that had taken from him without reward that sweet life which could be of no value except it were spared to the wild forest where his kindred live. From her description of the actions of that monkey, his conduct was identical with that of the Cebus, and may justly be interpreted to mean "Pity me!" or "Spare me!" A Scotch naturalist, commenting on my description of this act and its interpretation, quite agrees with me, and states that he has observed the same thing in other species of monkeys.

During a period of many weeks I visited Jokes almost daily; but after the lapse of more than two months I had not won him back nor quieted his suspicions against me. On my approach he usually manifested fear and went through the act of humiliation above described.

Observing that he entertained an intense hatred for a negro boy who teased and vexed him, I had the boy come near the cage. Jokes fairly raved with anger. I took a stick and pretended to beat the boy. This greatly delighted Jokes. I held the boy near enough to the cage to allow the monkey to scratch and pull his clothes. This filled his little simian soul with joy. Releasing the boy, I drove him away by throwing wads of paper at him. This gave Jokes infinite pleasure. I repeated this a number of times, and by such means we again became good friends. After each encounter with the boy, Jokes came to the bars, touched my hand with his tongue, chattered, played with

my fingers, and showed every sign of confidence and friendship. He always warned me of the approach of any one, and his conduct at such times was largely governed by my own. After this he never failed to salute me with the proper sound.

During this time I paid a few visits to another little monkey of the same species. Her name was Jennie. Her master had warned me in advance that she was not well disposed towards strangers. At my request he had her chained in a small side yard, which he forbade any of the family entering. On approaching the little lady for the first time, I gave her the usual salutation, which she responded to and seemed to understand. I sat down by her side and fed her from my hands. She viewed me with evident interest and curiosity. I studied her with equal interest. During the process of this mutual investigation a negro girl, who lived with the family, stealthily entered the yard and came up within a few feet of us. I determined to sacrifice this girl upon the altar of science. Placing her between the monkey and myself, I vigorously sounded the "alarm" or "warning." Jennie flew into a fury. I continued to sound the alarm and at the same time pretended to attack the girl with a club and some paper wads. The purpose was to make the monkey believe that the girl had uttered the alarm and made the assault. With a great display of violence I drove the girl from the yard. For days afterward she could not feed or approach the little simian. This further confirmed the opinion as to the meaning of this sound. This sound can be fairly imitated by placing the back of the hand gently on the mouth and

kissing it with great force, prolonging the sound. This imitation, however, is indifferent, but the quality of the sound is especially noticeable when analyzed on the phonograph. The pitch corresponds to the highest "F" sharp on a piano, while the word "drink" is about two octaves lower, and the word "food" is nearly three.

On one occasion I visited the Zoölogical Garden in Cincinnati, where I found in a cage a small Capuchin to whom I gave the name Banquo. It was near night and the visitors had left the house. The little monkey, worried out by the annoyance of visitors, sat quietly in the back of his cage, as though glad that another day was done. I approached the cage and uttered the sound which I have translated "drink." The first effort caught his attention and caused him to turn and look at me. He rose and answered with the same word. He then came to the front of the cage and looked at me as if in doubt. I repeated the word. He again responded, and turned to a small pan in the cage. He took it up and placed it near the door through which the keeper passed food to him. He then turned to me and again uttered the word. I asked the keeper for some milk; but he brought me some water instead. The efforts of the little simian to secure the glass were very earnest, and his pleading manner and tone gave evidence of his thirst. I allowed him to dip his hand into the glass and lick the water from his fingers. When the glass was kept out of the reach of his hand he repeated the sound and looked beseechingly at me as if to say: "Please give me more." This caused me to suspect that the word which I had translated "milk" also meant

"water." From this and other tests I finally determined that it meant "drink" in a broad sense and possibly also meant "thirst." It evidently expressed his desire for something with which to allay his thirst. The sound is very difficult to imitate and quite impossible to write, but an idea of it is given elsewhere.

On one of my visits to the Chicago Garden I stood with my side to a cage containing a small Capuchin. I uttered the sound which had been translated "milk." It caused him to turn and look at me, and on my repeating the sound a few times he answered very distinctly, using the same sound. Picking up the pan from which he usually drank, he brought it to the front of the cage, set it down, came up to the bars, and distinctly uttered the word. He had not been shown any milk or other kind of food. The man in charge then brought some milk, which I gave to the monkey, who drank it with great delight. I again held up his pan and repeated the sound. He used the same sound each time when he wanted milk. During this visit I tried many experiments with the word which I am now convinced means "food" or "hunger." I was led to the belief that he used the same word for apple, carrot, bread, and banana. Later experiments, however, have caused me to modify this view, because the phonograph shows slight variations of the sound, and it is probable that these faint inflections may indicate different kinds of food. They usually recognize this sound, even when poorly imitated. In this word may be found a clue to the great secret of speech. And while I have taken but one short step toward its solution, these facts point out the way that leads to it.

CHAPTER IV

Monkey Ethics — Sense of Color — Monkeys Enumerate — First Principles of Art

MONKEYS have a simple code of ethics. It is not by any means to be supposed that their sense of propriety or appreciation of color, form, dimension, or quality is of a high order; but that they have the rudiments upon which the higher cults of human society are based there is no doubt. Among the experiments that I performed along this line were some designed to ascertain the strength of these latent faculties or the degree to which these have been developed.

In order to ascertain whether or not monkeys have any choice of colors, I selected some bright-colored balls, marbles, candies, and bits of ribbon. Taking a piece of pasteboard, I placed on it a few pieces of candy of different colors. This was offered to a monkey to see if he would select a certain color. In order to avoid confusing him, I used only two colors at a time, but frequently shifted their places. This was to determine whether the color was chosen merely for convenience or for the sake of the color itself. By repeating this with a series of bright colors and frequent changing of their order it was ascertained in many instances that certain monkeys had a distinct choice of color. It was found that all monkeys do not select the

same color, and also that the same monkey does not at all times choose the same. But, as a rule, bright green appeared to be the favorite color of the Capuchins, and their second choice was white. In a few instances white appeared to be their preference. This experiment was not confined to candies, nuts, or other eatables. They appeared to use about the same taste in selecting their toys. From the use of artificial flowers, it appeared that the choice of green was possibly associated with their selection of food. On one occasion I kept a cup for a monkey to drink milk from. On one side of this was a picture of some bright flowers and green leaves. The monkey would sometimes quit drinking the milk and try to pick the flowers off the side of the cup. The fact that she could not remove the flowers appeared to annoy her, and she seemed not to understand why she could not get hold of them.

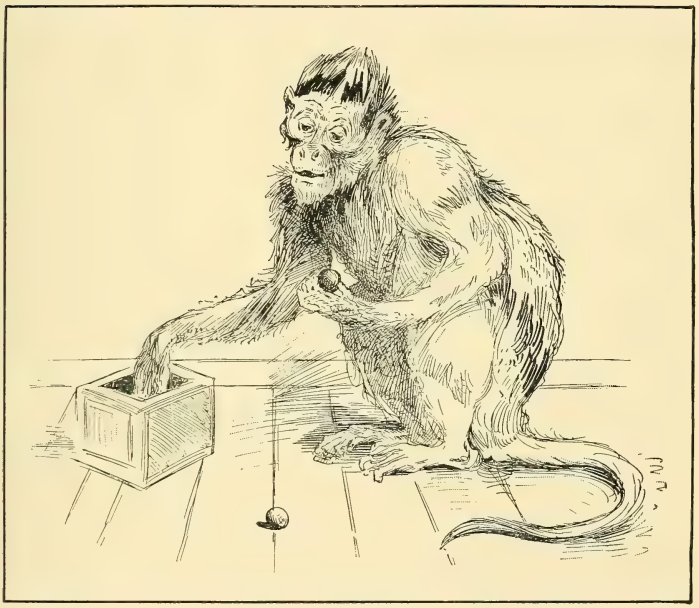
In one test I used a board about two feet long, upon which were a few pieces of white and pink candies, mixed and arranged in four different places on the board. The monkey selected the white from each pile before taking the pink, except in one instance, in which the pink was taken first. In another experiment I took a white paper ball in one hand and a pink one in the other and held my hands out to the monkey. He selected the white one almost every time, although from time to time I changed hands with the balls. It was not a mere matter of convenience with the monkey, for he would sometimes reach over the hand containing the pink ball in order to obtain the white one. Most of these experiments were performed with the Capuchins, but some of them were made with

the Rhesus. The fact that monkeys generally seem to be attracted by brilliant colors is doubtless due to the readiness with which these catch the attention; but when reduced to a choice between two colors, they do not seem to give preference to brilliant ones.

A unique but simple experiment was made in order to ascertain whether or not monkeys enumerate. I placed on a small platter one nut and a small piece of apple or carrot cut in the shape of a cube. On another platter were placed two or three such articles of like color and size. Holding the two just out of reach of the monkey, and changing hands from time to time, I observed that he tried to reach the platter containing the greater number, thus indicating that he discerned which contained the greater quantity or number of articles. It was long a matter of doubt as to whether it was by number or by quantity that his choice was controlled. But by taking one piece larger than the others and of different shape, it was ascertained that he appreciated the difference of quantity. Then, by taking a platter containing one piece and another platter containing several similar pieces, it was seen that he could distinguish singular from plural.

Another experiment was to determine to what extent he was able to enumerate. To this end I constructed a small square box and made a hole in one side of it. The box was cushioned inside so that the contents would not rattle. In the box were placed three marbles of the same size and color. The hole was just large enough for the monkey to withdraw his hand with one marble at a time. After letting him play with these for a while, putting them into the

box and taking them out, I abstracted one of the marbles and left the other two for him to play with. On taking them out of the box, he missed the absent one, felt in the box for it, rose, and looked where he had been sitting. Again he put his hand into the box and looked at me as if



Monkey Learning to Count

to say he had lost something. Failing to find it, he soon became reconciled to the loss and began to play with the remaining two. When he had become quite content with these, I abstracted a second one. Thereupon he instituted search and was quite unwilling to proceed without finding

the lost marbles. He put his hand into the box, evidently in the hope of finding them. He would not continue to play with the one. I restored one of the marbles, and when he discovered that I could find the lost marble, he appealed to me in each instance to assist him. Then with his little, dirty, black fingers he insisted upon opening my lips to see if it was concealed in my mouth — the place where monkeys usually conceal stolen goods. I repeated this experiment many times, until quite convinced of his ability to count three. Another marble was then added to the number and he was allowed to play with the four until he became familiar with that number. But when one was taken from the four he did not appear to be greatly impressed with the loss. At times he seemed to be in doubt, but he did not worry much about it, though seeming to realize that something was wrong.

It is not to be supposed that monkeys have names for numerals, but they surely have a more or less distinct conception of plurality. The same fact is true of birds. It is said that all birds are able to count the eggs in their nests. This is certainly true of those that lay only three or four eggs.

During the time that these experiments were being made with monkeys in this country, the late Professor Romanes was making certain experiments with a chimpanzee in London. He succeeded in teaching her to count seven, so that she would count and deliver to him on demand any number from one up to seven. This she did without prompting, and usually without mistake.

Among different specimens of monkeys there seems to

be a wide range of tastes. In this respect they vary much the same as human beings do. The same is true of their mental powers in general. With some monkeys the choice of color is much more definite and of dimension much more certain than in others, and most of them appear to assign to different numbers a difference of value.

Some monkeys are talkative and others taciturn. Some of them are vicious and some stolid, while others are as playful as kittens and as cheerful as sunshine. I regard the Cebus as the most intelligent of monkeys. In fact I have called him "The Caucasian of monkeys." The new world monkeys seem to be more intelligent and more loquacious than the old world stock, but this remark does not include the anthropoid apes.

As a test of the musical taste of monkeys, I took three little bells and suspended them by a like number of strings. The bells were all alike except that from two of them the clappers had been removed. Dropping the bells through the meshes of the cage at a distance of ten or twelve inches apart, the monkey was allowed to play with them. He soon discovered the one containing the clapper. He played with it and became quite absorbed with it. He was then attracted to another part of the cage, during which time the position of the bells was changed. On his return he found his favorite bell without a clapper. He then turned to another, and then another, until he found the one with the clapper. This indicated that the sound emitted by the bell was at least a part of its attraction.

During the time that I used the phonograph in studying the monkeys, I repeated many musical records to them

and found that some evinced fondness for the music, others were indifferent to it, and a few showed aversion to it. It appeared that the monkeys that were most attracted by musical sounds enjoy the repetition of a single note rather than the melody. It is possible that music, as we understand it, is too high an order of sense culture for them. The single note of a certain pitch seems to attract and afford pleasure to some of them, but they do not seem to appreciate rhythm or melody.

As monkeys discern the larger of two pieces of food, they may be said to have the perceptive faculty which enables them to appreciate dimension. As they are able to discern singular from plural, and two from three or more, they have, in that degree, the faculty of enumeration. As they are able to distinguish and select colors, they possess the first rudiment of art as dealing with color. As they are attracted or repelled by musical sounds, they may be said to possess the first rudiment of music. It must not be understood, however, that any claim is made that monkeys possess a high degree of mental culture ; but it will be admitted that they possess the germs of mathematics as dealing with form, dimension, and number ; of art, as dealing with form and color ; of music, as dealing with tone and time. It is not probable that they have any names for any of these sensations, nor that they have any abstract ideas that are not drawn directly from experience. But as the concrete must precede the abstract in the development of reason, it is more than probable that these creatures now occupy a mental horizon such as man has once passed through in the course of his evolution. It

does not require a great effort of the mind to appreciate the possibility that these feeble faculties, in constant use and under changed conditions, may develop into a higher degree of strength and usefulness. In fact we find in these creatures the embryo of every faculty of the human being, including those of reason and speech, through the exercise of which are developed the higher moral and social traits of man. They appear to have at least the raw material from which are made the highest attributes of the human mind, and I shall not contest with them the right of exclusive possession.

CHAPTER V

Pedro's Speech Recorded — Delivered to Puck through the Phonograph — Little Darwin Learns a New Word

IN the Washington collection there was once a Capuchin monkey by the name of Pedro. When I first visited this bright little fellow he occupied a cage in common with several other monkeys of different kinds. All of them seemed to impose upon little Pedro, and a mischievous young spider-monkey found special delight in catching him by the tail and dragging him about the floor of the cage. I interfered on behalf of Pedro and drove the spider-monkey away. Pedro appreciated this and began to look upon me as a benefactor. When he saw me he would scream to attract my attention and then beg for me to come to him. I induced the keeper to place him by himself in a small cage. This seemed to please him very much. When I went to record his sounds on the phonograph, I held him on my arm. He took the tube into his tiny, black hands, held it close up to his mouth and talked into it just like a good little boy who knew what to do and how to do it. He sometimes laughed, and he frequently chattered to me as long as he could see me. He would sit on my hand and kiss my cheeks, put his mouth up to my ear and chatter just as though he knew what my ears were for. He was quite fond of the head-keeper and also of the

director; but he entertained a great dislike for one of the assistant keepers. He often told me some very bad things about that man, though I could not understand what he said. I shall long remember how this dear little monkey used to cuddle under my chin and try to make me understand some sad story which seemed to be the burden of his life. He readily understood the sounds of his own speech when repeated to him, and I made some of the best records of his voice that I ever succeeded in making of any monkey. Some of them I preserved for a long time. They displayed a wide range of sounds, and I studied them with special care and pleasure, because I knew that they were addressed to me. Being aware that the little creature was uttering these sounds to me with the hope that I would understand them, I was more anxious to learn just what he really meant than if it had contained only something addressed to another. This little simian was born in the Amazon Valley, in Brazil, and was named for the late emperor, Dom Pedro.

At one time I borrowed from a dealer a little Capuchin called Puck, and had him sent to my apartments, where I had a phonograph. I placed the cage in front of the machine, upon which had been adjusted the record of my little friend Pedro. I concealed myself in an adjoining room, where, through a small hole in the door, I could watch the conduct of Puck. A string was attached to the lever of the machine, drawn taut, and passed through another hole in the door. By this means the machine could be started without attracting the attention of the monkey through his seeing anything move. When everything in

the room was quiet the machine was set in motion, and Puck was treated to a phonographic recital by Pedro. This speech was distinctly delivered through the horn to the monkey. From his actions it was evident that he recognized it as the voice of one of his tribe. He looked with surprise at the horn, made a sound or two, glanced around the room, and again uttered two or three sounds. Apparently somewhat afraid, he retired from the horn. Again the horn delivered some sounds of pure Capuchin speech. Puck seemed to regard them as sounds of some importance. He advanced cautiously and made a feeble response; but a quick, sharp sound from the horn startled him; and failing to find anything indicating a monkey, except the sound of the voice, he looked with evident suspicion at the horn, and scarcely ventured to answer any sound it made.

When the contents of the record had been delivered to him I entered the room. This relieved his fear of the horn. A little later the apparatus was again adjusted, and a small mirror was hung just above the mouth of the horn. Again retiring from the room, I left him to examine his new surroundings. He soon discovered the monkey in the glass, and began to caress it and chatter to it. Again the phonograph was started by means of the string, and when the horn began to deliver its simian oration, it greatly disconcerted and perplexed Puck. He looked at the image in the glass and then into the horn. He retired with a feeble grunt and an inquisitive grin, showing his little white teeth, and acting as though in doubt whether to regard the affair as a joke, or to treat it as a grim and scientific fact. His voice and actions were like those of a child, declaring in

words that he was not afraid, and at the same time betraying fear in every act. Puck did not cry, but his intense fear made the grin on his face rather ghastly. Again he approached the mirror and listened to the sounds which came from the horn. His conduct betrayed the conflict in his little soul. It was evident that he did not believe the monkey which he saw in the glass was making the sounds which came from the horn. He repeatedly put his mouth to the glass and caressed the image, but tried at the same time to avoid the monkey which he heard in the horn. His conduct in this instance was a source of surprise, as the sounds contained in the record were all uttered in a mood of anxious, earnest entreaty, which contained no sound of anger, warning, or alarm, but, on the contrary, appeared to be a kind of love-speech. I had not learned the exact meaning of any one of the sounds contained in this cylinder, but in a collective and general way had ascribed such meaning to them. From Puck's conduct it was to be inferred that this was some kind of complaint against those monkeys occupying the other cage. They had made life a burden to little Pedro. It was evident that Puck interpreted the actions of the monkey seen in the glass to mean one thing, and the sounds that came from the horn to mean quite another.

Their language is not capable of relating narratives or giving details in a complaint, but in general terms of grievance it may have conveyed to Puck the idea of a monkey in distress, and hence his desire to avoid it. The image in the glass presented to him a picture of a monkey in a happy mood, and he therefore had no cause to shun it.

The speech used by monkeys is not of a high order, but it appears to have been developed from an inferior type. Some species among them have much more copious and expressive forms of speech than others. From many experiments with the phonograph I conclude that some have much higher phonetic types than others. I have found slight inflections that seem to modify the values of their sounds. Certain monkeys do not make certain inflections at all, although in other respects the phonation of a species is generally uniform. In some cases it appears that the inflections differ slightly in the same species, but long and constant association tends in some degree to unify these dialects much the same as like causes blend and unify the dialects of human speech.

I observed one instance in which a Capuchin had acquired two sounds which strictly belonged to the tongue of the white-faced Cebus. At first I suspected that these sounds were common to the speech of both varieties; but on inquiry it was found that this brown Cebus had been confined for some years in a cage with the white-face, during which time he had acquired them.

The most interesting case that I have to record is one in which a young white-faced Cebus acquired the Capuchin sound for food. This occurred under my own observation, and, being attended by such conditions as to show that the monkey had a motive in learning the sound, I regard it as most noteworthy.

In the room where the monkeys were kept by a dealer in Washington, there was a cage containing the young Cebus in question. He was of rather more than average

intelligence. He was a quiet, sedate, and thoughtful little monkey. His gray hair and beard gave him quite a venerable aspect, and for this reason I called him Darwin. For some reason he was afraid of me, and I gave him but little attention. In an adjacent cage lived the little brown Cebus, called Puck. The cages were only separated by an open wire partition, through which they could easily see and hear each other. For some weeks I visited Puck almost daily, and in response to his sound for food, I supplied him with nuts, bananas, or other food. I never gave him anything to eat unless he asked me for it in his own speech.

On one occasion my attention was attracted by little Darwin, who was making a strange sound, such as I had never before heard one of his species utter. At first I did not recognize the sound, but finally discovered that it was intended to imitate the sound of the brown monkey, in response to which I always gave him some nice morsel of food. Darwin had observed that when Puck made this sound he was always rewarded with something to eat, and his own evident motive was to secure a like reward. After this I gave him a bit of food in acknowledgment of his efforts. From day to day he improved in making the sound, until at length it could scarcely be detected from that made by Puck. This was accomplished within a period of less than six weeks from the time of my first visit. In this instance, at least, I have witnessed one step taken by a monkey, in learning the speech of another. This was doubly interesting to me in view of the fact that I had long believed, and had announced the belief, that no monkey ever tried to acquire the sounds made by one of another

species. This instance alone was sufficient to cause me to recede from a conclusion thus rendered untenable; and the short time in which the feat was accomplished would indicate that the difficulty is not so great as it had been regarded. As a rule, monkeys do not learn each other's speech; but the rule is not without exceptions. I had previously observed, and called attention to the fact, that when two monkeys of different species are caged together, each one learns to understand the speech of the other, but does not try to speak it. When he replies at all, it is in his own vernacular. Monkeys do not essay to carry on a connected conversation. Their speech is usually limited to a single sound or word, and it is answered in the same manner. To suppose that they converse in an elaborate manner is to go beyond the bounds of reason. In this respect, the masses fail to understand the real nature of the speech of monkeys or other animals.

CHAPTER VI

Five Little Brown Cousins, Mickie, McGinty, Nemo, Dodo, and Nigger — Nemo Apologizes to Dodo

DURING the winter of 1891 there lived in Central Park five little brown monkeys, all of the same kind and occupying the same cage. They were all of more or less interest, and all of them were my friends. I paid them frequent visits and spent much time with them. I have the vanity to believe that I was always a welcome guest. We found much pleasure in each other's society. As the monkey house was open to the public after nine o'clock, I usually made my visits about sunrise in order to be alone with my little friends.

One of the most cunning and happiest of all little monkeys was in this group. His name was Mickie, and he was the boss of the school. He was not very talkative except when he wished for food or drink, but he was very playful and we had many a merry romp. Whenever I entered the cage Mickie perched himself above the door to surprise me by jumping on my neck. He then affectionately threw his arms around my neck and licked my cheeks, pulled my ears, and chattered in his sweet, plaintive tones. The other inmates of the cage were jealous of him, but none contested his right to do as he pleased. I am sorry to say that Mickie was not always as kind to his

little cousins as he might have been. He was like some people I have known who are selfish and sometimes cruel; but his habitual good nature made amends in some degree for his sudden fits of anger. Mickie did not belong to the park. He was only kept as a guest of the city during the absence of his master in Europe. He had a genuine sense of humor and sometimes played pranks upon the others, very much to their annoyance. On one occasion Mickie got the tail of another monkey around one of the bars of the cage. He sat down and held to it while its owner screamed with rage and scuffled to get away. During this time Mickie's face wore a broad, satanic grin, and he did not release his hold until he had tired of the fun.

Another one of these little cousins was named McGinty. McGinty was very fond of me; but he was afraid of Mickie, who was much larger and stronger than himself. McGinty always wanted to be counted in the game. He did not like to have Mickie monopolize my attentions. He often climbed upon my shoulders and caressed me very fondly, if not interrupted by Mickie; but whenever the latter came, poor little McGinty retired in disgust, pouted for a time, and even refused to accept food from me. By and by he would yield to my overtures and again join in the play. He seemed always to wish to find something that would divert my attention from Mickie.

Another inmate of the cage was a fine little monkey that belonged to Mr. G. Scribner, of Yonkers, N. Y. At the time of my visits I did not know the name of this little creature nor who owned him. I called him Nemo. He was timid and taciturn, but quite intelligent. He was

gentle in manner, kind in disposition, and he possessed a great amount of diplomacy. He was thoughtful and peaceable, but "full of guile." He always sought to keep the peace with Mickie, to whom he played the sycophant. He would put his little arms about Mickie's neck in a most affectionate manner and hang on to him like a last hope. In all broils that concerned Mickie, Nemo was his partisan. If Mickie was diverted, Nemo laughed. I have sometimes thought that he would do so if he were suffering with the toothache. He seemed to be as completely under the control of Mickie as was the curl in Mickie's tail. When Nemo saw Mickie bite my fingers in play, he thought it was done in anger and he lost no chance of biting them; but his little teeth were not strong enough to hurt very much. At last he discovered that Mickie was only biting me in fun, and after that Nemo did it apparently as a duty. It scarcely seems that a monkey can be capable of such far-reaching purpose or of such diplomacy, but by a careful study of his actions I could find no other motive.

One singular thing in the conduct of this monkey was his apologetic manner towards another inmate of the cage. Nemo had a soft musical voice and remarkable power of facial expression. On two occasions he appeared to apologize to a companion called Dodo. This was done in a very humble manner. I tried in vain to secure a record of this particular speech. His manner, voice, and face expressed contrition; but I was never able to learn either the exact cause or the extent of his humiliation. He sat in a crouching position, with the left hand clasped around the right wrist, and delivered his speech in a most

energetic, though humble, manner. After each effort he made a brief pause and repeated what appeared to me to be the same thing. This was done three or four times. When he had quite finished this speech, Dodo, to whom it had been addressed and who had quietly listened, delivered with her right hand a sound blow upon the left side of the face of the little penitent. To this he responded with a soft cry, but without resentment. The keeper assured me that he had many times witnessed this act, but he had no idea of its meaning. As to the details of this act, I have no theory ; but the state of mind and the purpose were evident. They expressed regret, penitence, or submission. I have witnessed something similar in other monkeys, but nothing equal in point of finish or pathos to that scene between Nemo and Dodo.

Dodo had a bright face and a symmetrical figure. In her I witnessed one of the most interesting acts that I have ever seen in any monkey. Her combined speech and actions bordered on the histrionic. Her monologue was addressed to her keeper, of whom she was especially fond. At almost any hour of the day Dodo would stand erect and deliver to her keeper the most touching and impassioned address. The keeper went into the cage with me, to see if he could handle her. After a little coaxing she allowed him to take her into his arms. After he had caressed her for a while and assured her that no harm was meant, she put her slender little arms about his neck and like an injured child cuddled her head up under his chin. She caressed him by licking his cheeks, and chattered in a voice full of sympathy. Her display of affection was

worthy of a human being. During most of this time she continued her pathetic speech. She was not willing he should leave her. The only time at which she made any show of anger or threatened me with assault was when I attempted to lay hands on her keeper or to release him from her embrace. At such times she would fly at me and attempt to tear my clothes off. On these occasions she would not allow any other inmate of the cage to approach him or to receive his caresses. The sounds which she uttered were at times pitiful, and the tale she told seemed to be full of sorrow. I have not, so far, been able to translate these sounds, but their import cannot be misunderstood. Her speech was doubtless a complaint against the other monkeys in the cage, and she was probably begging her keeper not to leave her alone in that great iron prison with all those big, bad monkeys who were so cruel to her. One reason for believing this to be the nature of her speech is that in all cases where I have heard this kind of speech and seen these gestures, the conditions were such as to indicate that such was their nature. It looks, however, very much like a love-making scene of the most intense kind.

It is difficult to describe either the sounds or the gestures made on these occasions The monkey stood erect upon her feet, crossed her hands over her heart, and in the most touching and graceful manner went through a series of singular contortions. She swayed her body from side to side, turned her head in a coquettish manner, and moved her folded hands dramatically. Meanwhile her face was adorned with a broad grin, and the soft, rich notes

of her voice were perfectly musical. She bent her body first into one curve and then into another, moved her feet with the grace of the minuet, and continued her fervent speech as long as the object of her adoration appeared to be touched by her appeals. Her voice ranged from pitch to pitch and from key to key, through the whole gamut of simian vocals, and with her arms folded she glided with the skill of a ballet girl across the floor of her cage. At times she stood with her eyes fixed upon her keeper, and held her face in such a position as not for a moment to lose sight of him. Meanwhile she turned her body entirely around in her tracks. This was accomplished with a skill such as no contortionist has ever attained. During these orations her eyes moistened as if in tears, showing that she felt the sentiment which her speech was intended to convey.

These little creatures do not shed tears as human beings do; but their eyes moisten as a result of the same causes that move the human eyes to tears.

These sounds appeal directly to our better feelings. What there is in the sound itself we do not really know, but it touches some chord in the human heart which vibrates in response to it. It has impressed me with the poetic thought that all our senses are like the strings of a great harp, each chord having a certain tension, so that any sound produced through an emotion finds a response in that chord with which it is in unison. Possibly our emotions and sensations are like the diatonic scale in music, and the organs through which they act respond in tones and semitones. Each multiple of any fundamental

tone affects the chord in unison, as the strings upon a musical instrument are affected. The logical deduction is that our sympathies and affections are the chords, and our aversions the discords, of that great harp of passion.

The last of this quintette was a frail little fellow called Nigger. He was not of much interest, as he was in poor health. He kept mostly to himself, because his companions were unkind to him and he was not strong enough to defend himself. He was gentle and affectionate. He was fond of being caressed and often evinced a sense of gratitude. He had a touch of humor which sometimes was very funny. He occasionally created a riot in the cage and then stole away to his corner and left the others to fight it out. He was the last of the five left in the park, but he was the first of them to die. The others were taken away by their owners; but poor little Nigger died in that dismal cage from whose windows he could see the beautiful trees and warm sunshine of springtime, though to him they were only a dream that saddened rather than cheered.

CHAPTER VII

Meeting with Nellie — Nellie was my Guest — Her Speech and Manners — Helen Keller and Nellie — One of Nellie's Friends — Her Sight and Hearing — Her Toys and how She Played with Them

ONE of the most intelligent of my brown Capuchin friends was little Nellie. When she arrived in Washington, I was invited to visit her. I introduced myself by speaking to her the sound of food. To that she promptly replied. She was rather informal, and we were soon engaged in a chat on that subject — the one that above all others interests a monkey. On my second visit she acted like an old acquaintance, and we had a fine time. On a later visit she allowed me to put my hands into her cage to handle and caress her. On another visit I took her out of the cage and we had a real jolly romp. This continued for some days, during which time she answered me when I gave the word for food or drink. She had grown quite fond of me, and always recognized me when I entered the door.

About this time there came to Washington a little girl who was deaf, dumb, and blind. It was little Helen Keller. She was accompanied by her teacher, who acted as her interpreter. A great desire of Helen's life was to see a live monkey — that is, to see one with her fingers. The owner

sent for me to come and show one to her. When any one except myself had put hands upon Nellie, she had growled and scolded and showed temper. I took her from the cage. When the little blind girl first put her hands on Nellie, the shy little monkey did not like it. I stroked the child's hair and cheeks with my own hand and then with Nellie's. She looked up at me and uttered one of those soft, flute-like sounds. Then she began to pull at the cheeks and ears of the child. Within a few minutes they were like old friends and playmates, and for nearly an hour they afforded each other great pleasure. At the end of that time they separated with reluctance. The little simian acted as if conscious of the sad affliction of the child, but seemed at perfect ease with her. She would decline the tenderest approach of others. She looked at the child's eyes, and then at me, as if to indicate that she was aware that the child was blind. The little girl appeared not to be aware that monkeys could bite. It was a beautiful and touching scene, and one in which the lamp of instinct shed its feeble light on all around. Helen has now grown into womanhood. I recently paid her a visit, and she assured me that she still pleasantly remembered this dear little monkey friend.

One day Nellie escaped from her cage and climbed upon a shelf occupied by some bird cages. As she climbed over the light wicker cages, some of them, with their little yellow occupants, fell to the floor. I tried to induce Nellie to return to me ; but the falling cages, the cry of the birds, the screeching of the parrots, and the vociferous chatter of other monkeys frightened poor Nellie almost out of her

wits. She, thinking I was the cause of all this trouble, because I was present, screamed with fright at my approach. Such is the rule that governs monkeydom. Monkeys suspect every one of doing wrong except themselves. I had her removed to my apartments. She was supplied with bells and toys, and was fed on the fat of the land. By this means we finally knitted together again the broken bones of our friendship. When once a monkey has grown suspicious of you, it seldom entirely recovers from aversion. In every act thereafter you are suspected of mischief. I made some good records of the speech of this amiable monkey and studied them with special care.

A frequent and welcome visitor to my study was a little boy about six years old. For him Nellie entertained great fondness. At the sight of the boy, Nellie went into perfect raptures, and when leaving him she called him so earnestly and whined so pitifully that one could not refrain from sympathy. On his return she would laugh audibly and give every sign of extreme joy. She never tired of his company, nor gave any attention to others while he was present. Some children next door found great delight in calling to see Nellie, and she always evinced great pleasure at their visits. On these occasions she consciously entertained them and showed herself to the best advantage. In order to make a good record of her sounds, and especially of her laughter, I brought the little boy to my aid. The boy would conceal himself in the room, and after Nellie had called him a few times he would jump out and surprise her. This would cause her to laugh till she could be heard throughout the whole house. In this manner I

secured some of the best records I have ever made of the laughter of monkeys. When the boy concealed himself again, I secured the peculiar sound which she used when trying to attract his attention.

Nellie had spent much of her life in captivity, and had been used to the society of children. She rarely ever betrayed any aversion to them. She delighted to pat their cheeks, pull their ears, and tangle their hair. She took great pleasure in cleaning one's finger-nails. She did this with the skill of a manicure. She found pleasure in picking the shreds, ravelings, or specks from one's clothing. She was not selfish in selecting her friends. She was influenced neither by age nor by beauty.

To be out of her cage and supplied with toys was all she demanded to make her happy. I have sometimes thought she preferred such a life to the freedom of her Amazon forests. It is to be regretted that monkeys are so destructive that one dare not turn them loose in a room where there is anything that can be torn or broken. They enjoy such mischief. Nellie often begged me so piteously to be taken from her little iron prison that I could not refuse her request, even at the cost of much trouble in preparing the room for her.

As we retain these little captives against their will and treat them worse than slaves by keeping them in close confinement, we should at least try to amuse them. It is true that they do not have to toil ; but it would be more humane to make them work in the open air than to confine them so closely and deprive them of every means of pleasure. As an act of humanity and simple justice, I would impress

upon those who have the charge of these little pets the importance of keeping them supplied with toys. In this respect they are just like children. For a trifle one can furnish them with such toys as they need. It is absolutely cruel to keep these little creatures confined in solitude and deny them the simple pleasure they find in playing with a bell, a ball, or a few marbles. A trifling outlay in this way will very much prolong their lives. Monkeys are always happy if they have plenty to eat and something to play with. I recall no investment of mine which ever yielded a greater return in pleasure than one little pocket match-safe, costing twenty-five cents, which one evening I gave to Nellie to play with. I had put into it a small key to make it rattle, and also some bits of candy. She rattled the box and found much pleasure in the noise it made. I showed her how to press the spring in order to open the box; but her little black fingers were not strong enough to release the spring and make the lid fly open. However, she caught the idea and knew that the spring was the secret which held the box closed. When she found that she could not open it with her fingers, she tried it with her teeth. Failing in this, she turned to the wall, and standing upright on the top of her cage, she took the box in both hands and struck the spring against the wall until the lid flew open. She was perfectly delighted at the result, and for the hundredth time, at least, I closed the box for her to open it again. On the following day some friends came in to visit her. I gave her the match-safe to open. On this occasion she was in her cage, and through its meshes she could not reach the wall. She had nothing against which to strike the spring

to force it open. After looking around her and striking the box a few times against the wires of her cage, she discovered a block of wood about six inches square. She took this and mounted her perch. Balancing the block on the perch, she held it with the left foot, while with the right foot she held to the perch. With her tail wound around the meshes of the cage to steady herself, she carefully adjusted the match-box in such a manner as to protect her fingers from the blow. Then she struck the spring against the block of wood and the lid flew open. She fairly screamed with delight and held up the box with pride. The lid was again closed in order that she might open it.

The late hours which I kept were beginning to tell on Nellie, and from time to time during the day I caught her taking a nap. I determined to use some curtains to avoid disturbing her rest. Drawing them around the cage, I lapped them over and pinned them down in front. Then I turned down the light and kept quiet for a little while to allow her to go to sleep. After the lapse of a few minutes I quietly turned up the light and resumed writing. In an instant the curtains rustled. Looking around, I saw her little brown eyes peeping through the folds of the curtains, which she gracefully held apart with her little black hands. When she saw what had caused the disturbance she chattered in her soft, rich tones, and tried to pull the curtains farther apart. I arranged them so she could not look around the room. To see her holding the curtains apart in that coquettish manner, turning her head from side to side, peeping and smiling at me and talking in such low sweet tones, was like a real flirtation. One who has not witnessed

such a scene cannot fully appreciate it. Only those who have experienced the warm and unselfish friendship of these little creatures can realize how strong the attachment becomes. The love of these little creatures is proof against gossip, and their tongues are free from it.

Among the many captives of the simian race who spend their lives in iron prisons, adding to the wealth and gratifying the cruelty of man, — not to expiate any crime, — I have many little friends. I am attached to them. So far as I can see, their devotion to me is as warm and sincere as that of any human being. I must confess that I am too obtuse to discern in what way the love they have for me differs from my own for them. I cannot see in what respect their love is less sublime than human love. I cannot discern in what respect the affection of a dog for a kind master differs from that of a child for a kind parent. I fail to see in what respect the sense of fear of a cruel master differs from that of the child toward a cruel parent. It is mere sentiment that ascribes to the passion of a child a higher source than the same passion in the dog or the monkey. The dog could have loved or feared another master just as well. Filial love or fear reaches out its tendrils just as far when all the ties of kindred blood are removed. It has been said that for one we are able to assign a reason *why*, while the other feeling is a mere impulse. I am too dull to understand how reason actuates to love, and instinct to mere attachment. I do not believe that in the intrinsic nature of these passions there is any essential difference. Whether it be reason or instinct in man, the affections of the lower animals are actuated by

the same motives, governed by the same conditions, and guided by the same reasons as those of man. I shall long remember some of my monkey friends, and I feel sure that, far away in the silent niches of their memory, some of them have my image enshrined. Sometimes after long months of absence I see them again. They always recognize me at sight and often scream with pleasure at my return.

CHAPTER VIII

Caged in an African Jungle — The Cage and its Contents — Its Location — Its Purpose — The Jungle — The Great Forest — Its Grandeur — Its Silence

IT will be of interest to the reader to know the manner in which I have pursued the study of monkeys in a state of nature, and the means employed to that end. I, therefore, give a brief outline of my life in a cage in the heart of the African jungle, where I went in order to watch the denizens of the forest when free from all restraint.

Having for several years devoted much time to the study of the speech and the habits of monkeys in captivity, I formulated a plan of going to their native haunts to study them under more favorable conditions.

In the course of my labors up to that time, I had found that monkeys of the highest physical types have also higher types of speech than those of the inferior kinds. In accordance with this fact, it was logical to infer that in the anthropoid apes — they being next to man in the scale of nature — would be found the faculty of speech developed in a higher degree than in the monkeys. The chief object of my study was to learn the language of animals. The great apes appeared to be the best subjects for that purpose, so I turned my attention to them. The gorilla was said to be the most nearly like man, and the chimpanzee

NATIVE VILLAGE AT GLASS GABOON

(From a Photograph.)

next. There were none of the former in captivity, and but few of the latter; and those few were kept under conditions that forbade all efforts to do anything in the line of scientific study of their speech. As the gorilla and the chimpanzee could both be found in the same section of tropical Africa, that region was selected as the best field of operation; and, in order to carry out the task assumed, I prepared for a journey thither.

The locality chosen was along the equator and about two degrees south of it. This region is infested with fevers, insects, serpents, and wild beasts of divers kinds. To ignore such dangers would be folly; but there was no way to see these apes in their freedom, except to go and live among them. To lessen in a degree the dangers incurred by such an adventure, I devised a cage of steel wire woven into a lattice with a mesh one inch and a half wide. This was made in twenty-four panels, each three feet and three inches square, set in frames of narrow iron strips. Each side of the panels was provided with lugs or half hinges, so arranged as to fit any side of any other panel. These could be quickly bolted together with small iron rods, and when so joined they formed a cage of cubical shape, six feet and six inches square.

Any one or more of the panels could be used as a door. The whole structure was painted a dingy green, so that when erected in the forest it was almost invisible in the foliage.

While this cage was not strong enough to withstand a prolonged attack, it afforded a certain degree of immunity from being surprised by the fierce and stealthy beasts of

A NATIVE CANOE

(From a Photograph.)

the jungle, and would allow its occupant time to kill an assailant before the wires would yield to an assault from anything except elephants. It was not, indeed, designed as a protection against them; but, as they rarely attack a man unless provoked to it, there was little danger from that source. Besides, there are not many of those huge brutes in the part where this strange domicile was set up.

Through this open fabric one could see on all sides without obstruction, and yet feel a certain sense of safety from being devoured by leopards or panthers.

Over this frail fortress was spread a roof of bamboo leaves. It was provided with curtains of canvas, to be hung up in case of rain. The floor was of thin boards, steeped in tar. The structure was elevated about two feet from the ground and supported by nine small posts or stakes, firmly driven into the earth. It was furnished with a bed made of heavy canvas. This was supported by two poles of bamboo attached to its edges. One of these poles was lashed fast to the side of the cage, and the other was suspended at night by strong wire hooks hung from the top of the cage. During the day the bed was rolled up on one of the poles, so as to be out of the way. I had a light camp chair, which folded up. A table was improvised from a broad, short board hung on wires. When not in use this was set up by the side of the cage. To this outfit a small kerosene stove and a swinging shelf were added. A few tin cases contained my wearing apparel, blankets, a pillow, a camera and photographic supplies, medicines, and an ample store of canned meats, crackers, etc. There were also some tin platters, cups, and spoons. A magazine rifle,

THE EDGE OF THE JUNGLE

(From a Photograph.)

a revolver, ammunition, and a few useful tools, such as hammer, saw, pliers, files, and a heavy bush-knife, completed my stock. The tin plates served for cooking vessels and also for table use, instead of dishes, which are heavier and more fragile.

With this equipment I sailed from New York on the 9th of July, 1892, *via* England, to the port of Gaboon, the site of the colonial government on the French Congo. This place is within a few miles of the equator, and near the borders of the country in which the gorilla lives. I arrived there on the 19th of October of that year, and after a delay of some weeks in that locality I set out to find the object of my search.

Leaving that place, I went up the Ogowé River about two hundred or two hundred and fifty miles, and thence through the lake region on the south side of it. After some weeks of travel and inquiry, I arrived on the south side of Lake Ferran Vaz, in the territory of the Nkami tribe. The lake is about thirty miles long, by ten or twelve miles wide, and is interspersed with a few islands of various sizes, covered with a dense growth of tropical vegetation. The country about the lake is mostly low and marshy, traversed by creeks, lagoons, and rivers. Most of the land is covered by a deep and dreary jungle, intersected at intervals by small, sandy plains, covered with a thin growth of long, tough grass.

It is difficult to convey in words an adequate idea of what the jungle really is. To those who have never seen one it is almost impossible to describe it. But in order that you may have some conception of the place in which

IN THE JUNGLE

(From a Photograph.)

I lived so long, I shall endeavor to picture some characteristic spots.

Spread over a vast extent of the low delta region near the coast is a growth of gigantic trees, from five to eight feet in diameter near the base and growing to a height of eighty or a hundred feet, having long, spreading boughs and broad, dark foliage. This growth of trees is sufficiently dense to constitute a great forest. The intertwining boughs and the dense leaves form an impenetrable canopy, spreading for miles in all directions. This is called the "great forest." Between the stalks and under the boughs of this forest is another growth of trees varying in diameter from one to two feet at the base and reaching to a height of forty, fifty, or sixty feet. This growth alone would constitute another forest as dense as were those of North America before the visitation of the white man. This growth is called the "middle forest." Under this is another growth, consisting of palms, vines, shrubs, and bushes of almost every kind. This growth is so dense, so matted and so intertwined as to be in places quite impassable by any living creature, except by slimy reptiles, small rodents, venomous insects, and creeping things of many kinds. This is called the "under forest." The three combined growths together properly constitute *the jungle*. From the boughs of the taller trees hang long pendants of moss and vines, and from bough to bough hang graceful festoons of the same. These are frequently adorned with delicate ferns and great clusters of gorgeous orchids. So dense and luxuriant is the vegetation in many parts of the forest that no ray of sunlight ever penetrates it, and in its dark, damp grottoes,

WAITING AND WATCHING IN THE CAGE

(From a Photograph.)

even at midday, it is almost like a twilight. Here and there are found places more open, and from these can be had better views of its grandeur. Standing alone in the midst of this great wilderness, one cannot fail to be impressed with its sublime and awful beauty. From certain points of view the banks of leaves rise like terraces, one above another, giving almost the appearance of artificial work. From other points are seen groups of flowering trees, rising in huge mounds almost to the top of the forest. So many and so beautiful are the views from various points that one becomes almost lost in a perfect maze of colors, lights, and shadows. At times not a sound of any living thing is heard, and the unspeakable silence only makes the scene the more impressive. While it is true that this great forest teems with life, there are times when it appears to be an endless, voiceless solitude. But, remaining for a time within its dreary shades, one will behold its many denizens creeping through the tangled meshes in quest of food.

Within this vast empire of shadows the fierce wild beasts contend for mastery. Among its dark green bowers soar many birds of brilliant plumage, and through its silvan naves shriek the wild winds of the tornado. Within its deep shadows crouches the leopard awaiting his victim, and through its dismal labyrinth the stealthy serpent wends his tortuous way. Every breeze is laden with the effluvia of decaying plants, and every leaf exhales the odors of death.

In the depths and the gloom of such a forest the gorilla dwells in safety and seclusion. In the same wilderness the chimpanzee makes his abode. But he is less timid and retiring.

On the south side of this lake, not quite two degrees below the equator, and within about twenty miles of the ocean, is the place at which I located, in the heart of the primeval forest. Here I erected my little fortress and gave it the name of Fort Gorilla. On the 27th of April, 1893, I took up my abode in this desolate spot, and began a long and solitary vigil.

My sole companion was a young chimpanzee that I named Moses. From time to time I had a native boy as a servant. But I found it better to be alone and, therefore, when the boy had done his chores he was dismissed until such time as his services might be desired.

Seated in this cage in the silence of the great forest, I have seen the gorilla in all his majesty, strolling at leisure through his sultry domain. Under like conditions I have seen the chimpanzee, and the happy, chattering monkeys in the freedom of their jungle home.

In this novel hermitage I remained most of the time for one hundred and twelve days and nights.

During this period I had opportunities of watching the animals following, in perfect freedom, the pursuits of their daily life. With such an experience I trust that I shall not be charged with vanity in saying that I have seen more of those animals in a state of nature than any other white man ever saw, and under conditions more favorable for a careful study of their manners and habits than could otherwise be possible. Hence what I have to say concerning them is the result of an experience which no other man can justly claim.

I do not mean to ignore or impugn what others have said

on this subject ; but the sum of my labors in this field leads me to doubt much that has been said and accepted as true. I regret that it devolves upon me to controvert many of the stories told about the great apes, but finding no germ of truth in some of them, I cannot evade the duty of denying them. I regret it all the more, because many of them have been woven into the fabric of natural history, have become integral parts of our literature, and received the seal of scientific approval ; but time will justify and sustain me in the denial. I am aware that bigots of certain schools will challenge me for pointing out their mistakes ; and some will assume to know more about these apes than fishes know about swimming ; but the simple truth should have precedence over all theories.

Before proceeding with an account of the apes I shall relate some of the incidents of my hermitage.

CHAPTER IX

Daily Life and Scenes in the Jungle — How I Passed the Time — What I Had to Eat — How it was Prepared — How I Slept — My Chimpanzee Companion

I AM so frequently asked about the details of my daily life in the cage, how the time was occupied, and what I saw besides the apes, that I deem it of interest to relate a few of the events of my sojourn in that wild spot. I shall, therefore, recount the incidents of a single day and night; but from day to day of course this routine varied.

About six o'clock, as the sun first peeps into the forest, it finds me with a tin cup of coffee just made on a little kerosene stove. It is black and dreggy, but with a little sugar it is not bad. With a few dry crackers I break my fast of twelve hours and am now ready for the task of the day. My bed having been rolled up out of the way and Moses helped to a banana or two, I take my rifle, Moses climbs upon my shoulder, and we set out for a walk in the bush. When we return we bring from the spring, some three hundred yards away, a supply of water for the day. Then Moses climbs about in the bushes and amuses himself, while I watch for gorillas. Silence is the order of the day. And here I sit alone, — sometimes for hours, — in a stillness almost as great as that of a tomb.

STARTING FOR A STROLL

(From a Photograph.)

Presently a rustle of the leaves is heard, and a porcupine comes waddling into view. He pokes his nose about in search of food, but he has not yet discovered my presence. He comes closer. The scent or sight of me startles him, and away he goes. Now a civet comes stealing through the bush, till he observes me and hastily departs.

After an hour of patient waiting the sound of clashing boughs is heard. A few minutes later is seen a school of monkeys, led by a solemn-looking old pilot, who doubtless

A Peep at My Cage

knows every palm tree that bears nuts within many miles around. They are now coming to inspect my cage and see what new thing this is set up in monkeydom.

As they draw nearer they become more cautious. They

find a strong bough in the top of a big tree, and the grave old pilot perches himself far out on it in order to get a good peep at my cage. Just behind him sits the next in rank, resting his hands on the shoulder of the leader, while a dozen more occupy similar attitudes behind each other along the limb. Each one pushes the one just in front of him to make him move up a little closer, but none of them except the pilot seems to want the front seat.

They look on in silence, occasionally turning their little heads from side to side, as if to be certain it is not an illusion. Again they nudge each other, and move up a little closer, meanwhile squinting their bright eyes, as if in doubt about the strange sight before them. They have made such calls before, but have not yet fully determined what kind of an animal it is that occupies the cage. At each successive visit they come a little nearer, until they are now not a hundred feet away. Now they take alarm at something and hurry off in another direction.

Next comes a pangolin, prowling about for insects among the leaves. He catches a glimpse of the cage, stands motionless for a moment to see what it is, and then like a flash he is gone. During this time birds of divers kinds are flying in all directions. Some of them perch on the limbs near by, some pick nuts from the palm trees, while others scream and screech like so many tin whistles or brass horns. The most conspicuous among them are the noisy toucans and parrots. Many of them have brilliant and beautiful plumage.

It is now ten o'clock. Not a breath of air stirs a leaf of the great forest. The heat is sweltering and oppres-

sive. The voices of the birds grow less and less frequent. Even the insects do not appear to be so busy as they were in the earlier hours of the day. Moses has abandoned his rambles in the bush, and sits on a fallen tree, with his arms folded, as if he had finished work for the day.

Along towards this hour everything in the forest seems to become quiet and inactive, and continues so until about two o'clock in the afternoon. I was impressed upon more than one occasion with this universal rest during the hottest part of the day, and the same thing seems to prevail among aquatic animals.

I now prepare my repast for midday by opening a can of meat or fish, and warming it on a tin plate on the little stove. I have no vegetables or dessert, but with a few crackers broken up and stirred into the grease, and plenty of water to drink, I make an ample meal. When it is finished, Moses coils up in his little hammock, swung by my side, and takes his siesta. The boy, when there, stretches out on the floor and does likewise. During the hours about noon, few things are astir, though during that time I have seen some interesting sights.

It must not be supposed that the change is sudden at the beginning or at the end of this period, for such is not the case. There is no fixed time for anything to cease activity. It is by slow degrees that one thing after another becomes quiescent, until life appears to be for a time almost extinct; but as the sun descends the western sky, life and activity revive, and by three o'clock everything is again astir. Now, a lone gorilla comes stalking through the bush, looking for the red fruit of the *batuna*, a peculiar

fruit that grows near the root of the plant. He plucks a bud of some kind, tears it apart with his fingers, smells it, and then throws it aside. Now he takes hold of a tall sapling, looks up at its shaking branches and turns away. He pauses and looks around as if suspicious of danger. He listens to see if anything is approaching, but being reassured he resumes his search for food. Now he gently parts the tangled vines that intercept his way and creeps noiselessly through them. He hesitates, looks carefully around him, and then again proceeds. He is coming this way. I see his black face as he turns his head from side to side, looking for food. What a brutal visage! It has a scowl upon it, as if he were at odds with all his race. He is now within a few yards of the cage, but is not aware of my presence. He plucks a tendril from a vine, smells it, and puts it into his mouth. He plucks another and another. I shall note that vine and ascertain what it is. Now he is in a small open space where the bush has been cut away so as to afford a better view. He seems to know that this is an unusual thing to find in the jungle. He surveys it with caution. He comes nearer. Now he has detected me. He sits down upon the ground and looks at me as if in utter surprise. A moment more he turns aside, looks over his shoulders, and hurries away into the dense jungle.

It is now four o'clock. I hear a wild pig rooting among the fallen leaves. I see a small rodent that looks like a diminutive hedgehog. He is gnawing the bark from a dead limb, possibly to capture some insect secreted under it. But as rodents usually live upon vegetable diet, he may have some other reason for this.

It is five o'clock and the shadows in the forest are beginning to deepen. I see two little gray monkeys playing in the top of a very tall tree. The birds become monotonous and tiresome. Yonder is a small snake twined around the limb of a bushy tree. He is probably hunting for a nest of young birds. The low muttering sound of distant thunder is heard. Little by little it grows louder. It is the familiar voice of the coming tornado. I must prepare for it.

The stove is now lighted and a shallow pan of water is set upon it. Into it is stirred an ounce of desiccated soup. It is heated to the boiling point, and is then set on the swinging table. A can of mutton is emptied into another pan of the same kind, and a few crackers are broken and stirred into the mutton. The soup is eaten while the meat is being warmed. This is now ready, and the flame of the stove is turned off. The second course of dinner is now served. It consists of canned mutton, crackers, and water. The dishes, consisting of three tin platters and a cup, are thrust into the adjacent bush. The ants and other insects will clean them during the night.

Moses has now had his supper and has gone to his own little house, to find shelter from the approaching storm. The curtains are hung up on the side of the cage towards which the tornado is coming. The leaves of the forest begin to rustle. It is the first cool breath of the day, but it is the herald of the furious wind that is rapidly advancing. The tree-tops begin to sway. Now they are lashing each other as if in anger. The strong trees are bending from the wind. The lightning is so vivid that it is

blinding. The thunder is terrific. One shaft after another, the burning bolts are hurled through the moaning forest.

Down the frail wires of my cage the water runs in little rivulets. Acting as a prism, it refracts the vivid lightning and makes the whole fabric look like a latticework of molten fire trickling down from the overhanging boughs. Like invisible demons the shrieking winds rush through the bending forest, and the unceasing roar of the thunder reverberates from the dark recesses of the jungle. Amid the din of storming forces is heard the dull thud of falling trees, and the crackling limbs are dropping all around. All nature is in a rage. Every bird and every beast now seeks a place of refuge from the warring elements. No sign of life is visible. No sound is audible save the voice of the storm. How unspeakably desolate the jungle is at such an hour no fancy can depict. How utterly helpless against the wrath of nature a living creature is no one can realize, except by living through such an hour in such a place.

On one occasion five large trees were blown down within a radius of a few hundred feet of my cage. Scores of limbs were broken off by the wind and scattered like straws. Some of them were six or eight inches in diameter and ten or twelve feet long. One of them broke the corner of the bamboo roof over my cage. The limb was broken off a huge cotton tree near by and fell from a height of about sixty feet. It was carried by the wind some yards out of a vertical line as it fell, and just passed far enough to spare my cage. Had it struck the body of it, the cage would have been partly demolished ; the main stem of the bough was about six inches in diameter and ten feet long.

This particular tornado lasted for nearly three hours and was the most violent of all I saw during the entire year.

Now the storm subsides, but the darkness is impenetrable. I have no light of any kind, for that would alarm the inhabitants of the jungle and attract a vast army of insects from all quarters. Moses is fast asleep, while I sit listening to the many strange and weird sounds heard in the jungle at night. The bush crackles near by. A huge leopard is creeping through it. He is coming this way. Slowly, cautiously, he approaches. I cannot see him in the deep shadows of the foliage, but I can locate him by sound, and identify him by his peculiar tread. Perhaps when he gets near enough he will attack the cage. He is creeping up closer. He evidently smells prey and is bent on seizing it. My rifle stands by my elbow. I silently raise it and lay it across my lap. The brute is now crouching within a few yards of me, but I cannot see to shoot him. I hear him move again, as if adjusting himself to spring upon the cage. He surely cannot see it, but by means of scent he has located me. I hear a low rustling of the leaves as he swishes his tail preparatory to a leap. If I could only touch a button and turn on a bright electric light! He remains crouching near, while I sit with the muzzle of the rifle turned towards him. My hand is on the lock. It is a trying moment. If he should spring with such force as to break the frail network that is between us, there could be but one fate for me.

In the brief space of a few seconds a thousand things run through one's mind. They are not necessarily prompted by fear, but rather by suspense. Is it best to fire into the

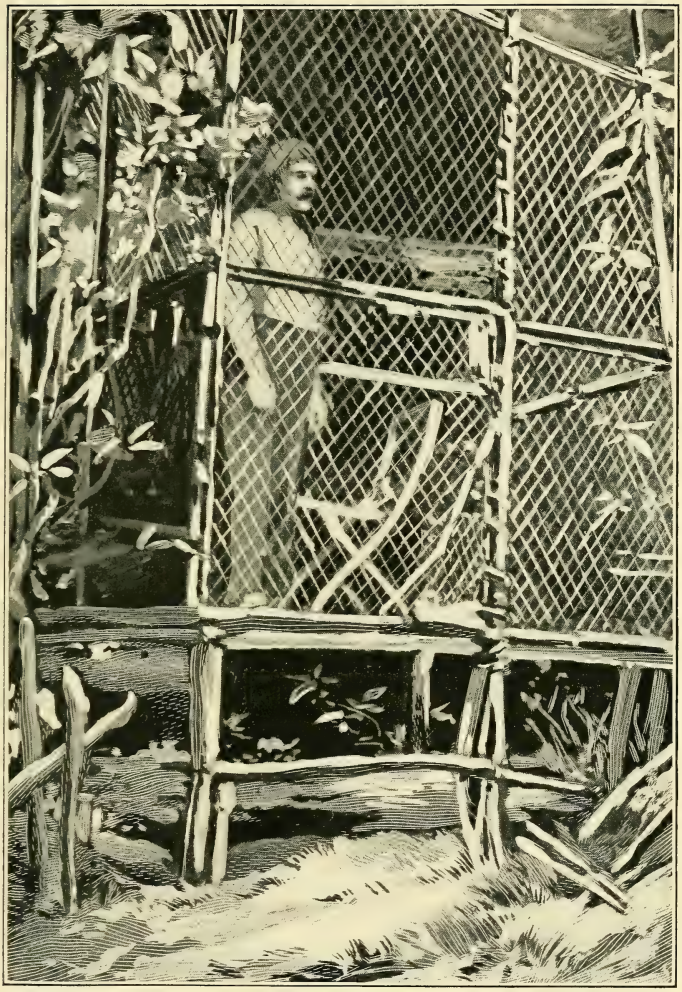
black shadows or to wait for the leopard's attack? What is his exact pose? What does he intend? How big is he? Can he see me? A category of similar questions rises at this critical moment.

A clash of bushes and he is gone; not with the stealthy, cautious steps with which he advanced, but in hot haste. He has taken alarm, abandoned his purpose, and far away can be heard the dry twigs crashing as he hurries to some remote nook. He flees as if he thought he was being pursued. He is gone, and I feel a sense of relief.

It is ten o'clock. The low rumbling of distant thunder is all that remains of the tornado that swept over the forest a few hours ago. The stars are shining, but the foliage of the forest is so dense, that one can only see here and there a star peeping through the tangled boughs overhead. I hear some little waif among the dead leaves, but what it is or what it wants can only be surmised.

Another hour has passed, and I retire for the night. The sounds of nocturnal birds are fewer now. I hear a strange, tremulous sound from the boughs of the bushes near the cage. The leaves are vibrating. The sound ceases and again begins at intervals. I listen with attention, for it is a singular sound. It is the movement of a huge python in search of birds. He reaches out his head, stretches his neck, grasps the bough of a slender bush, releases his coil from another, and by contraction draws his slimy body forward. The pliant bough yields to his heavy weight. The abrasion causes it to tremble and the leaves to quake.

I fall asleep and rest in comfort, while the dew that has fallen upon the leaves gathers itself into huge drops; their



PREPARING FOR THE NIGHT

(From a Photograph.)

weight bends the leaves, and they fall from their lofty place, striking with a sharp, popping sound the big leaves far below them. The hours fly by; but in the stillness of early morning is heard a most unearthly scream. It is the voice of a king gorilla. He makes every leaf in the forest tremble with the sound of his piercing shrieks.

Thus another night is erased from the calendar of time and another day begins. The dawn awakes to life the teeming forest, and all its denizens again go forth to join the universal chase for food.

All of the incidents here cited are true in every detail, but they did not occur every day, nor did all of them occur on the same day, as might be inferred from the manner in which they are related. But this recital gives a fair idea of the daily routine in the bosom of the great forest, although this is a mere glimpse of the scenes of life in the jungle. By going out for a day or two at a time, hunting on the plains a few miles away, I often relieved the monotony. My menu was occasionally varied by a mess of parrot soup, a piece of goat, fish, or porcupine; but the general average of it was about as has been described.

CHAPTER X

The Chimpanzee — The Name — Two Species — The Kulu-Kamba
Distribution — Color and Complexion

NEXT to man the chimpanzee occupies the highest plane in the scale of nature. His mental and social traits, together with his physical type, assign him to this place.

In his distribution he is confined to equatorial Africa. His habitat, roughly outlined, is from the fourth parallel north of the equator to the fifth parallel south of it, along the west coast, and extends eastward a little more than halfway across the continent. His range cannot be defined with precision, for its exact limits are not yet known. Its boundary on the north is defined by the Cameroon valley, slightly curving towards the north ; but its extent eastward is a matter of some doubt. He does not appear to be found anywhere north of that river, and it is quite certain that the few specimens attributed to the north coast of the Gulf of Guinea do not belong to that territory. On the south the boundary of his habitat starts from the coast, at a point near the fifth parallel, curves slightly northward, crosses the Congo near Stanley Pool, pursues a northeasterly course to about the middle of the Congo State, and again curves southward across the Upper Congo, not far from the north end of Lake Tanganyika.

Its limits appear to conform more to isothermal lines than to the rigid lines of geography. Specimens are sometimes secured by collectors beyond these limits, but, so far as I have been able to ascertain, they have been captured within the territory thus bounded. There are several centers of population. This ape is not strictly confined to any definite topography, but occupies alike the upland forests or the low basin lands.

In one section he is known to the natives by one name, and in another by a name entirely different. The name *chimpanzee* is of native origin. In the Fiote tongue the name of the ape is *chimpan*, which is a slight corruption of the true name. It is properly a compound word. The first syllable is from the Fiote word *tyi*, which white men erroneously pronounce like "chee." It means "small," or inferior, and it is found in many of the native compounds. The last syllable is from *mpa*, a bushman ; hence the word literally means, in the Fiote tongue, "a small bushman," or inferior race. The name really implies the idea of a lower order of human being. Among other tribes a common name of the ape is *ntyigo*. The latter is derived from the Mpongwe word *ntyia*, blood, race, or breed, and the word *iga*, the forest. It literally means the "breed of the forest." The same idea of its being a low type of humanity is involved in the two names. Both convey the oblique suggestion that the animal is more nearly allied to man than other animals are.

There are two distinct types of this ape. They are now regarded as two species. One of them is distributed throughout the entire habitat described, while the other

is only known south of the equator and between the second and fifth parallels north of the Congo and west of Stanley Pool. Both kinds are found within this district, but the variety which is confined to that region is called, by the tribes that know the ape, the *kulu-kamba*, in contradistinction from the other kind known as *ntyigo*. This name is derived from *kulu*, the onomatope of the sound made by the animal and the native verb, *kamba*, to speak; hence the name literally means "the thing that speaks kulu."

In certain respects the common variety differs from the *kulu-kamba* in a degree that would indicate that they belong to distinct species; but the skulls and the skeletons are so nearly alike that no one can identify them from the skeletons alone. In life, however, it is not difficult to distinguish them. The *ntyigo* has a longer face and more prominent nose than the *kulu*. His complexion is of all shades of brown, from a light tan to a dark, dingy, mummy color. He has a thin coat of short, black hair, which is often erroneously described as brown; but that effect is due to the blending of the color of his skin with that of his suit. In early life his hair is quite black, but in advanced age the ends are tipped with a dull white, giving them a dingy gray color. The change is due to the same causes that produce gray hairs on the human body. But there is one point in which they greatly differ. The entire hair of the human becomes white with age, while only the outer end of it does so in the chimpanzee. In the human one hair becomes white, while others retain their natural color; but in this ape all the hairs appear to

undergo the same change. In very aged specimens the outer part of the hair often assumes a dirty, brownish color. This is due to the want of vascular action to supply the color pigment. The same effect is often seen in preserved specimens, for the same reason that the hair of an Egyptian mummy is brown, though in life it had been, doubtless, a jet black. In this ape the hair is uniformly black, except the small tuft of white at the base of the spinal column and a few white hairs on the lower lip and the chin. I have examined about sixty living specimens, and I have never found any other color among them, except from the cause mentioned. The normal color of both sexes is the same. The *kulu* has, as a rule, but little hair on the top of the head; but that on the back of it and on the neck is much longer than elsewhere on the body, and on these parts it is longer than that on other apes.

Much stress is laid by some writers on the bald head of one ape and the parted hair on the head of another. These features cannot be relied upon as having any specific meaning, unless there are as many species as there are apes. Sometimes a specimen has no hair on the crown of the head, while another differs from it in this respect alone by having a suit of hair more or less dense; and yet in every other respect they are alike. Some of them have their hair growing almost down to the eyebrows, and all hairs appear to diverge from a common center, like the radii of a sphere; another of the same species may have the hair parted in the middle as neatly as if it had been combed; another may have it in wild disorder. The same

thing is noticed in certain monkeys, and it is equally true of the human being. As a factor in classifying, it signifies nothing. It may be remarked that the *kulu* is inclined to have but little hair upon the crown of the head.

Between the two species there is a close alliance. The males differ more than the females. This is especially true in the structure of certain organs. The face of the young *ntyigo* is free from hairs, but in the adult state there is in both sexes a tendency to the growth of a light down upon the cheeks. The color of the skin is not uniform in all parts of the body. This is especially true of the face. Some specimens have patches of dark color set in a lighter ground. Sometimes certain parts of the face are dark and other parts light. I have seen one specimen quite freckled. It is said by some that the skin is light in color when young, and becomes darker with age ; but I find no reason to believe that such is the case. It is true that the skin darkens a few shades as the cuticle hardens, but there is no transition from one color to another, and this slight change of shade is chiefly on the exposed parts.

The *kulu* has a short, round face, much like that of a human. In early life it is quite free from hairs, but, like the other, a slight down appears with age. He has on his body a heavy suit of black hair. It is coarser and longer than that of the *ntyigo*. It is also inclined to wave, thus having a fluffy aspect. The color is jet black, except a small tuft of white about the base of the spine. I have seen two in which this tuft was perfectly black. The skin varies in color less than in the *ntyigo*, and the darker shades are seldom found. The eyes are a shade darker,

and in both species the parts of the eye which are white in man are brown in them. But this gradually shades off into a yellow near the base of the optic nerve. As a rule, the *kulu* has a clear, open visage, with a kindly expression. It is confiding and affectionate to a degree beyond any other animal. It is more intelligent than its *confrère*, and displays the faculty of reason almost like a human being.

One important point in which these two types of ape differ is in the scope and quality of their voices. The *kulu* makes a greater range of vocal sounds. Some of them are soft and musical; but those uttered by the *ntyigo* are fewer in number and harsher in quality. One of these sounds resembles the bark of a dog, and another is a sharp, screaming sound. The *kulu* evinces a certain sense of gratitude, while the *ntyigo* appears to be almost devoid of that sentiment. There are many traits in which they differ, but human beings, even within the same family circle, also differ in these qualities. The points in which they coincide are many, and, after a brief review of them, we may consider the question of making two species of them or assigning them to the same.

The skeletons — as we have noted — are the same in form, size, and proportion. Their muscular, nervous, and veinous systems are for the most part the same. The character of their food and the mode of eating are the same in each. In captivity they appear to regard each other as one of their own kind; but whether they intercross or not remains to be learned.

Such is the sum of the likenesses and the differences between the two extreme types of this genus. With so

many points in common, and so few in which they differ, it is a matter of serious doubt whether they can be said to constitute two distinct species or only two varieties of a common species. This doubt is further emphasized by the fact that all the way between these two extremes are gradations of intermediate types, so that it is next to impossible to say where one ends and another begins.

In view of all these facts, I believe them to be two well-defined varieties of the same species. They are the white man and the negro of a common stock. They are the patrician and the plebeian of one race, or the nobility and the yeomanry of one tribe. They are like different phases of the same moon. The *kulu-kamba* is simply a high order of chimpanzee. It is quite true that two varieties of one species usually have the same vocal characteristics, and this appears to be the strongest point in favor of assigning them to separate species, but it is not impossible that even this may be waived. Leaving this question for others to decide as they find the evidence to sustain them, we shall for the present regard them as one kind, and consider their physical, social, and mental characteristics.

Whether they are all of one species, or divided into many, the same habits, traits, and modes of life prevail throughout the entire group, so that one description will apply to all, so far as we have to deal with them as a whole. Elsewhere will be related certain incidents which apply to individuals of the two kinds mentioned; but in treating of them collectively the term *chimpanzee* is meant to include the whole group, except where it is otherwise specified.

CHAPTER XI

Physical Qualities of the Chimpanzee — His Social Habits — Mental Characteristics

PHYSICALLY considered, the chimpanzee very closely resembles man, but there are certain points in which he differs both from man and from other apes. We may notice a few of these points. The model of the ear of the chimpanzee closely resembles that of man, but the organ is larger in size and thinner in proportion. It is very sensitive to sound, but dull to touch. The surface is not well provided with nerves. He cannot erect his ear, as most animals do, by the use of the muscles at the base; but, like the human ear, the muscles are useless, and in this respect the ear is fixed and helpless.

The hand of the chimpanzee is long and narrow. The finger bones are larger, in proportion to their size, than those of the human hand. One thing peculiar to the hand of the chimpanzee is that the tendons inside of the hand (those called the flexors), which are designed to close the fingers, are shorter than the line of the bones. On this account the fingers of the ape are always held in a curve. He cannot straighten them. This is probably due to the habit of climbing, in which he indulges to such a great extent. He also indulges in the practice of hanging suspended by the hands. In making his way through the

bush he often swings himself by the arms from bough to bough. Sometimes he suspends himself by one arm, while he uses the other to pluck and eat fruit. This characteristic is transmitted to the young, and is found in the first stages of infancy. The thumb is not truly opposable, but is inclined to close towards the palm of the hand. It is of little use to him. His nails are thick, dark in color, and not quite so flat as those of man.

The great toe, instead of being in line with the others, projects at an angle from the side of the foot, something after the manner of the human thumb. The foot itself is quite flexible and has great prehensile power. In climbing, and in many other ways, it is used as a hand. The tendons in the sole of the foot are equal in length to the line of the bones, and the digits of the foot can be straightened; but from the habitual use of them in climbing, the ape is predisposed to close the digits, wherefore the foot is naturally inclined to curve into an arch, especially in the line of the first and second digits.

His habit of walking is peculiar. The greater part of the weight is borne upon the legs. The sole of the foot is placed almost flat on the ground, but the pressure is greatest along the outer edge, in the line of the last digit. This is easily noticed where he walks over plastic ground. In the act of walking he always uses the hands, but he does not place the palms on the ground. He uses the backs of the fingers instead. Sometimes only the first joints or phalanges, resting upon the nails, are placed on the ground. At other times the first and second joints are used. I have seen one specimen that, when walking, employed the

backs of all his fingers, from the knuckles to the nails. The integument on these parts is not callous, like that of the palm. The color pigment is distributed the same as on other exposed parts of the body. These facts show that the weight of the body is not borne on the fore limbs, as it is in the case of a true quadruped, but indicate that the hand is only used to balance the body while in the act of walking and to shift the weight from foot to foot. The weight is, therefore, not equally distributed between the hands and the feet, and the animal cannot truly be said to be a quadruped in habit.

His waddling gait is caused by his short legs, stooping habit, and heavy body. All animals having stout bodies and short legs are predisposed to a waddling motion, which is due to the wide angle between the weight and the changing center of gravity. This motion is more conspicuous in bipeds than in quadrupeds, because the base supporting the weight is reduced to a single point.

The chimpanzee is neither a true quadruped nor a true biped, but combines the habits of both. It appears to be a transition state from the former to the latter. Vestiges of this mixed habit are still to be found in man. In the act of walking his arms alternate in motion with his legs. This suggests the idea that he may have had, at some time, a similar habit of locomotion. Such a fact does not necessarily show that he was ever an ape, but it does point to the belief that he has once occupied a horizon in nature like that now occupied by the ape, and that having emerged from it, he still retains traces of the habit. This peculiarity is still more easily observed in children than in

adults. In early infancy all children are inclined to be bow-legged. In their first efforts at walking they invariably press most of their weight on the outer edge of the foot and curve the toes inward, as if to grasp the surface on which the foot is placed. The instinct of prehension cannot be mistaken. It differs in degree in different races, and is vastly more pronounced in negro infants than in white ones.

There is another peculiar feature in the walk of the chimpanzee. The arms and legs do not alternate in motion with the same degree of regularity that they do in man or quadrupeds. This ape uses his arms more like crutches. They are moved forward, not quite, but almost at the same instant, and the motion of the legs is not at equal intervals. To be more explicit: the hands are placed almost opposite each other; the right foot is advanced about three times its length; the left foot is then placed about one length in front of the right; the arms are again moved; the right foot is again advanced about three lengths forward of the left; and the left again brought about one length in front of that. The same animal does not always use the same foot to make the long stride. It will be seen by this that each foot moves through the same space, and that, in a line, the tracks of either foot are the same distance apart; but the distance from the track of the right foot to that of the left is about three times as great as the distance from the track of the left foot to that of the right. Or the reverse may be the case. The distance from the track of either foot to the succeeding track of the other is never the same between the right and left tracks, except where the animal is walking at great leisure.

There is, perhaps, no animal more awkward than the chimpanzee, when he attempts to run. He sometimes swings his body with such force between his arms as to lose his balance and fall backward on the ground. Sometimes when he rights himself again, he is half his length backward of his starting point.

The chimpanzee is doubtless a better climber than the gorilla. He finds much of his food in trees; but he is not, in the proper sense of the term, arboreal. To be arboreal, the animal must be able to sleep in a tree or on a perch. The chimpanzee cannot do so. He sleeps the same as a human being does. He lies down on his back or side, and frequently uses his arms for a pillow. I do not believe it possible for him to sleep on a perch. He may sometimes doze in that way, but the grasp of his foot is only brought into use when he is conscious. I have often known Moses to climb down from the trees and lie upon the ground to take a nap. I never saw him so much as doze in any other position.

I may here call attention to one fact concerning the arboreal habit. There appears to be a rule to which this habit conforms. Among apes and monkeys the habit is in keeping with the size of the animal. The largest monkeys are found only among the lowest trees, and the small monkeys among the taller trees. It is a rare thing to see a large monkey in the top of a tall tree. He may venture there for food or to make his escape, but it is not his proper element. The same rule appears to hold good among the apes. The gibbon has the arboreal habit in a more pronounced degree than any other true ape. The

orang appears to be next; the chimpanzee comes in for third place, and the gorilla last. It must not be understood that all of these apes do not frequently climb, even to the tops of the highest trees; but that is not their normal mode of life, any more than the top of a mast is the habitual place for a sailor on a ship.

The chimpanzee is nomadic in habit, and, like the gorilla, seldom or never passes two nights in the same spot. As to his building huts or nests in trees or elsewhere, I am not prepared to believe that he ever does that. For months I hunted in vain and made diligent inquiry in several tribes, but failed to find a specimen of any kind of shelter built by an ape. I do not assert that it is absolutely untrue that he does this, but I have never been able to obtain any evidence of it, except the statement of the natives. On the contrary, certain facts point to the opposite belief. If the ape built himself a permanent home, the natives would soon discover it and there would be no difficulty in having it pointed out. If he built a new one every night, however rude and primitive it might be, there would be so many of them in the forest that there would be no difficulty in finding them. The nomadic habit plainly shows that he does not build the former kind, and the utter absence of them shows that he does not build the latter kind. The whole story appears to be without foundation.

In addition to these facts, one thing to be noticed is that few or none of the mammals of the tropics ever build any kind of home. The animals that in other climates have the habit of burrowing do not appear to do so in the tropics. This is due, no doubt, to the warm climate, in which

they are not in need of shelter. Of course birds and other oviparous animals build nests, as they do elsewhere. The period of incubation makes this necessary.

The longevity of these apes is largely a matter of conjecture, but from a cursory study of their dentition and other facts of their development, it appears that the male reaches the adult stage at an age ranging from eight to ten years, while the female matures between six and eight. These appear to be the periods at which they pass from the state of adolescence. Some of them live to be perhaps forty years of age, or upwards, but the average life is probably not more than twenty-one to twenty-three years. The average of life is, doubtless, more uniform with them than with man. These figures are not mere guesswork, but are deduced from reliable data.

The period of gestation in both these apes is a matter that cannot be stated with certainty. Some of the natives say that it is nine months, while others believe that it is seven months or less. There are some facts to support each of these claims, but nothing is quite conclusive. The sum of the evidence that I could find rather points to a term of four and a half months, or thereabouts, as the true period. During the months of January and February the male gorillas are vociferous in their screaming, the young adults separate from the families, and other things indicate that this is the season of pairing and breeding. They may not be strictly confined to this period, but the inference that they are so is well founded. It is quite certain that the season of bearing the young is from the beginning of May to the end of June. It is about this time that the dry

season begins, and it continues for four months. It would appear that nature has selected this period of the year because it is more favorable for rearing the young. During this season food is more abundant and can be secured with less effort. The lowlands are drier, and this enables the mother to retire with her young to the dense jungle, where she is less exposed to danger than she would be in the more open forest. It is uncertain whether or not the periods are the same with both apes. Native reports differ on this point. But it is probable that they are the same. The average of this season is about four and a half moons, or eighteen weeks.

From a social point of view the chimpanzee appears to be of a little higher caste than other apes. In his marital ideas he is polygamous, but is in a certain degree loyal to his family. The paternal instinct is a trifle more refined in him than in other simians. He seems to appreciate better the relationship of parent and child and to retain it longer than others do. Most male animals become estranged from their young and discard them at a very early age. The chimpanzee keeps his children with him until they are old enough to go away and rear families of their own.

The family of the chimpanzee frequently consists of three or four wives and ten or twelve children, with one adult male. There are known cases in which two or three adult males have been seen in the same family, but each one having his own wives and children. In such an event there seems to be one who is supreme. This fact suggests the idea that among them a form of patriarchal

government prevails. The wives and children do not apparently question the authority of the patriarch or rebel against it. The male parent often plays with his children and is seemingly very fond of them.

There is one universal error that I desire here to correct. It is the common idea that animals are so strongly possessed of the paternal instinct that they nobly sacrifice their own lives in defense of their young. I do not wish to dispel any belief that tends to dignify or ennoble animals, for I am their friend and champion. But truth demands that this statement be qualified. It is quite true that many have lost their lives in such acts of defense, but it was not a voluntary sacrifice. It is not alone in the defense of their young, but in many cases it is an act of self-defense. In other instances it is from a lack of judgment. These apes have often been frightened away from their young and the latter captured while the parents were fleeing from the scene. This may have been the result of sagacity rather than of depravity; but the parental instinct in both sexes and in many instances has failed to restrain them from flight. If it be a foe that appears to come within the measure of their own power, they will defend their young, and this sometimes results in the loss of their own lives; but if it be one of such formidable aspect as to appear quite invincible, the parents leave the young to their fate. This is true of all animals, including mankind.

I have no desire to detract from the heroic quality of this instinct or to dim the glory it sheds upon the noble deeds ascribed to it, but the fact that a parent incurs the risk of its own life in the defense of its young is not a

true test of the strength or quality of this instinct. It is only in the few isolated cases of a voluntary sacrifice of the parent, foreknowing the result, that it can be said the act was due to instinct. In most such cases the parent acts under a belief in its own ability to rescue the one in danger, the parent not being wholly aware of its own peril. I doubt if any animal except man ever deliberately offered its own life as a ransom for that of another. Such instances in human history are so rare as to immortalize the actor.

To whatever extent the instinct may be found, it is much stronger in the female than in the male, and it appears to be stronger in domestic animals than in wild ones. To what extent this is due to their contact with man, it is difficult to say. The germ may be inherent, but it responds to culture.

The fact that the ape deserts its offspring under certain conditions may be taken as an evidence of superior intelligence affording it a higher appreciation of life and danger, rather than a low, brutish impulse. It is the exercise of superior judgment that causes man to act with more prudence than other animals. It does not detract from his nobleness.

Within the family circle of the chimpanzee the father is supreme; but he does not degrade his royalty by being a tyrant. Each member of the family seems to have certain rights that are not impugned by others. Possession is the right of ownership. When one ape procures a certain article of food, the others do not try to dispossess him. It is probably from this source that man inherits the idea of private ownership. It is the same principle, amplified,

by which nations claim the right of territory. Nations often violate this right, and so do chimpanzees, when not held in check by something more potent than a mere abstract sense of justice. With all due respect, I do not think the ape so much abuses the right by urging his claim beyond his real needs as nations sometimes do.

When a member of a family of apes is ill, the others are quite conscious of the fact and evince a certain amount of solicitude. Their conduct indicates that they have, in a small degree, the passion of sympathy, but the emotion is feeble and wavering. So far as I know, they do not essay any treatment, except to soothe and comfort the sufferer. They surely have some definite idea of what death is, and I have sometimes had reason to believe that they have a name for it. They do not readily abandon their sick, but when one of them is unable to travel with the band the others rove about for days, keeping within call of it; but they do not minister to its wants. It is said that if one of them is wounded the others will rescue it if possible and convey it to a place of safety. I cannot vouch for this, as such an incident has never come within my own experience.

One of the most remarkable of all the social habits of the chimpanzee is the *kanjo*, as it is called in the native tongue. The word does not mean "dance" in the sense of saltatory gyrations, but it implies more the idea of "carnival." It is believed that more than one family take part in these festivities. Here and there in the jungle is found a small spot of sonorous earth. It is irregular in shape and about two feet across. The surface is of clay and is artificial. The clay is superimposed upon a kind of

KANJO NTYIGO–CHIMPANZEE DANCE

peat bed, which, being porous, acts as a resonance cavity and intensifies the sound. This constitutes a kind of drum. It yields rather a dead sound, but this is of considerable volume.

This queer drum is thus made by the chimpanzees. They secure the clay along the banks of some stream in the vicinity. They carry it by hand, deposit it while in a plastic state, spread it over the place selected, and let it dry. I have placed in the museum of Buffalo, N. Y., a part of one of these drums that I brought home with me from the Nkami forest. It shows the finger-prints of the apes. They were impressed in it while the mud was yet soft.

After the drum is quite dry, the chimpanzees assemble by night in great numbers and the carnival begins. One or two of them beat violently on this dry clay, while others jump up and down in a wild and grotesque manner. Some of them utter long, rolling sounds, as if trying to sing. When one tires of beating the drum, another relieves him, and in this fashion the festivities continue for hours. I know of nothing like this in the social system of any other animal, but what it signifies or what its origin was is quite beyond my knowledge. They do not indulge in this *kanjo* in all parts of their domain, nor does it occur at regular intervals.

The chimpanzee is averse to solitude. He is fond of the society of man and is, therefore, easily domesticated. If allowed to go at liberty, he is well disposed, and is strongly attached to man. If confined, he becomes vicious and ill-tempered. All animals, including man, have the same

tendency. Mentally the chimpanzee occupies a high plane within his own sphere of life, but within those limits the faculties of the mind are not called into frequent exercise and, therefore, they are not so active as they are in man.

It is difficult to compare the mental status of the ape to that of man, because there is no common basis upon which the two rest. Their modes of life are so unlike as to afford no common unit of measure. Their faculties are developed along different lines. The two have but few problems in common to solve. While the scope of the human mind is vastly wider than that of the ape, it does not follow that it can act in all things with more precision. There are, perhaps, instances in which the mind of the ape excels that of man by reason of its adaptation to certain conditions. It is not a safe and infallible guide to measure all things by the standard of man's opinion of himself. It is quite true that, by such a unit of measure, the comparison is much in favor of man ; but the conclusion is neither just nor adequate. It is a problem of great interest, however, to compare them in this manner, and the result indicates that a fair specimen of adult ape is in about the same mental horizon as a child of one year old. But if the operation were reversed and man were placed under the natural conditions of the ape, the comparison would prove much less in favor of man. There is no common mental unit between them.

On problems that concern his own comfort or safety the chimpanzee exercises the faculty of reason with a fair degree of precision. He is quick to interpret motives or to discern intents, and he is a rare judge of character. He

is inquisitive, but not so imitative as monkeys are. He is more observant of the relations of cause and effect. In his actions he is controlled by more definite motives. He is docile and quickly learns anything that lies within the range of his own mental plane.

The opinion has long prevailed that these apes subsist upon a vegetable diet. That is a mistake. In this respect their habits are much the same as those of man, except that the latter has learned to cook, but the former eats his food raw. Their natural tastes are greatly diversified, and they are not all equally fond of the same articles of food. Most of them are partial to the wild mango, which grows in abundance in certain localities in the forest. This is often available when other kinds of food are scarce. It thus becomes, as it were, a staple article of food. There are many kinds of nuts to be found in their domain, but the nut of the oil palm is a great favorite. They sometimes eat the kola nut, but they are not partial to it. Several kinds of small fruits and berries also form part of their diet. They eat the stalks of some plants, the tender buds of others, and the tendrils of certain vines. The names of these vines I do not know.

Most of the fruits and plants that are relished by them are either acidulous or bitter in taste. They are not especially fond of sweet fruits. They prefer those having the flavors mentioned. They eat bananas, pineapples, or other sweet fruits, but rarely do so from choice. Most of them appear to prefer a lime to an orange, a plantain to a banana, a kola nut to a sweet mango. In captivity they acquire a taste for sweet foods of all kinds.

In addition to these articles they devour birds, lizards, and small rodents. They rob birds of their eggs and their young. They make havoc of many kinds of large insects. Those that I have owned were fond of cooked meats and salt fish, either raw or cooked.

CHAPTER XII

The Speech of Chimpanzees — A New System of Phonetic Symbols — Some Common Words — Gestures

THE speech of chimpanzees (as of other simians) is limited to a few sounds, and these chiefly relate to their natural wants. The entire vocabulary of their language embraces perhaps not more than twenty-five or thirty words. Many of them are vague or ambiguous, but they express the concept of the ape with as much precision as it is defined to his mind, and quite distinctly enough for his purpose.

During my researches I have learned ten words of the speech of this ape, so that I can understand them and make myself understood by them. In tone, pitch, and modulation most of the sounds are within the compass of the human voice. Two of them are much greater in volume than it is possible for the human lungs to reach, and one of them rises to a pitch more than an octave higher than a human voice of middle pitch. These two sounds are audible at a great distance, but they do not properly fall within the limits of speech.

The vocal organs of the chimpanzee resemble those of man as closely as other physical features have been shown to resemble. They differ slightly in one respect that is worthy of notice. Just above the opening called

the glottis (which is the opening between the vocal cords) are two small sacs or ventricles. In the ape these are larger and more flexible than in man. In the act of speaking they are inflated by the air passing out of the lungs into the long tube called the larynx. The function of these ventricles is to control and modify the sound by increasing or decreasing the pressure of the air that is jetted through the tube. They serve at the same time as a reservoir and as a gauge.

In the louder sounds uttered by the chimpanzee these ventricles greatly distend. This intensifies the voice or increases its volume. It is partly due to these little sacs that the ape is able to make such a loud and piercing scream. But the pitch and volume of his voice cannot be alone due to this cause, for the gorilla (in which these ventricles are much smaller) can make a vastly louder sound. We may be mistaken, however, about the sound commonly ascribed to him.

Although the sounds made by the chimpanzee can be imitated by the human voice, they cannot be expressed or represented by any system of phonetic symbols in use among men. Alphabets have been deduced from pictographs, and the conventional symbol that is used to represent a given sound has no reference to the organs of speech that produced it. The few rigid lines that have survived and that now form the alphabets are within themselves meaningless, but they have been so long used to represent the elementary sounds of speech that it would be difficult to supplant them with others.

As no literal formula can be made to represent the

phonetic elements of the speech of chimpanzees, I have taken a new step in the art of writing. I suggest a system of symbols which is rational in method and simple in device.

The organs of speech always act in harmony. A certain movement of the lips is always attended by a certain movement of the internal organs of speech. This is true of the ape as well as of man. In order to utter the same sounds, each would employ the same organs and use them in the same manner.

By this means deaf-mutes are able to distinguish the sounds of speech and to reproduce them, although they do not hear them. By close study and long practice they learn to distinguish the most delicate shades of sound.

In this plain fact lies the clue to the method I offer for consideration. As yet it is only in the infant stage, but it is possible to be made, with a very few symbols, to represent the whole range of vocal sounds made by man or other animals.

The chief symbols I employ are the parentheses used in common print. The two curved lines placed with the convex sides opposite, thus, ( ), represent the open glottis, in which position the voice utters the broad sound of "A," as in "father." The glottis about half closed utters the sound of "O." To represent this sound a period is inserted between the two curved lines, thus, (.). When the aperture is still more contracted it produces the sound of "U," like "$\overline{oo}$" in "woo." To represent this sound a colon is placed between the lines, thus, (:). When the aperture is restricted to a still smaller compass the sound of "U"

short is uttered, as in "but." To represent this sound an apostrophe is placed between the lines, thus, (’). When the vocal cords are brought to a greater tension, and the aperture is almost closed, it utters the short sound of "E," as in "met." To represent this sound a hyphen is inserted between the lines, thus, (-). These are the main vowel sounds of all animals, although in man they are sometimes modified, and to them is added the sound of "E" long, while in the ape the long sounds of "O" and "E" are rarely heard.

From this vowel basis all other sounds may be developed, and by the use of diacritics to indicate the movements of the organs of speech the consonant elements are indicated.

A single parenthesis, with the concave side to the left, will represent the initial sound of "W," which sometimes occurs in the sounds of animals. When used, it is placed on the left side of the leading symbol, thus,)( ), and this symbol, as it stands, is pronounced nearly like "O–A," the "O" being suppressed until almost inaudible. Turning the concave side to the right, and placing it on the right side of the symbol, thus, ( )(, it represents the vanishing sound of "W." This symbol reads "A–O," with the latter vocal suppressed into the terminal sound of "O." The apostrophe placed before or after the symbol will represent "F" or "V." The grave accent, thus, è, represents the breathing sound of "H," whether placed before or after the symbol, and the acute accent, thus, é, represents the aspirate sound of that letter.

When the symbol is written with a numeral exponent, it indicates the degree of pitch. If there is no figure, the

sound is such as would be made by the human voice in ordinary speech. The letter "X" indicates a repetition of the sound, and the numeral placed after it will show the number of times repeated, instead of the pitch. For example, we will write the sound (.), which is equivalent to long "O," made in a normal tone; the same symbol written thus $(.)^2$ indicates that the sound is made with greater energy, and about five semitones higher. To write it thus, $(.)^2$ X, indicates that the sound is five semitones above the normal pitch of the human voice and is once repeated.

I shall not subject the reader to the tedium of elaborate details of the system here outlined. This brief *exposé* of the method of representing the sounds of animals is sufficient to convey an idea of the means by which it is possible to write the sounds of all animals, so that the student of phonetics will recognize at once the character of the sound, even if he cannot reproduce it by natural means.

It may be of interest to describe the character and use of some of the sounds uttered by the chimpanzee. The most frequent sound made by animals is that referring to food, and therefore it may claim the first attention. This word in the language of the chimpanzee begins with the short sound of the vowel "U," which blends into a strong breathing sound of "H." The lips are compressed at the sides, and the aperture of the mouth is nearly round. It is not difficult to imitate, and the ape readily understands it even when poorly made. By the method of writing above described it is expressed thus, $(^1)$`.

A sound that is of frequent use among them is that used for calling. The vowel element is "$\bar{U}$" long, slightly

sharpened. It merges into a distinct vanishing "W." Expressed in symbols, it is (:) (. The food sound is often repeated two or three times in succession, but the call is rarely repeated, except at long intervals.

One sound which is rather soft and musical is an expression of friendship or amity. It appears to soften in tone and lengthen in duration in a degree commensurate with the intensity of the sentiment. The vowel element is a long "U." It blends into an aspirated "H." It is fairly represented by the symbol (:)′.

The most complex sound that I have so far heard made by them is the one elsewhere described as meaning "good." They often use it in very much the same sense as man uses the expression "thanks," or "thank you." It is not probable that they use it as a polite term, yet the same idea is present.

One of the words of warning or alarm contains a vowel element closely resembling the short sound of "E." It terminates with the breathing sound of "H." It is used to announce the approach of anything that the animal is familiar with, and not afraid of. If the warning is intended to apprise you of the approach of an enemy, or something strange, the same vowel element is used, but terminates with the aspirate sound of "H" pronounced with energy and distinctness. The vowel element is the same in both words, but they differ in the time required to utter them, and the final breathing and aspirate effects. There is also a difference in the manner of the speaker in the act of delivering the word. It plainly indicates that he knows the use and value of the sounds. At the approach of danger

the latter word is often given almost in a whisper, and at long intervals apart, increasing in loudness as the danger approaches. The other word is usually spoken distinctly, and frequently repeated. It is worthy of note that the natives use a similar word in the same manner and for the same purpose.

There are other sounds which are easily identified but difficult to describe, such as that used to signify "cold" or "discomfort"; another for "drink" or "thirst," another referring to "illness," and still another which I have reason to believe means "dead" or "death." There are perhaps a dozen more words that can readily be distinguished, but as yet I have not been able to determine their exact meanings. I have an opinion concerning some of them, but have not yet reached a final conclusion about them.

The chimpanzee makes use of a few signs which may be regarded as auxiliary factors of expression. He makes a negative sign by moving the head from side to side in the same manner as man does, but the gesture is not frequent or pronounced. Another negative sign, which is more common, is a wave-like motion of the hand from the body towards the person or thing addressed. This sign is sometimes made with great emphasis. There is no question as to its meaning. The manner of making this sign is not uniform. Sometimes it is done by an urgent motion of the hand. Bringing it from his opposite side, with the back forward, it is thrust towards the person or thing approaching. The interpretation is, that the ape objects to the approach. The same sign is often made as a refusal of anything offered him. Another way of making this sign

is with the arm extended forward, the hand hanging down, and the back towards the person approaching or the thing refused. In addition to these negative signs there is one which may be regarded as affirmative. It is made simply by extending one arm towards the person or thing desired. It sometimes serves the purpose of beckoning. In this act there is no motion of the hand. These signs appear to be innate, and are very similar in character to those used by men to signify the same idea.

It must not be inferred from this small list of words and signs that there is nothing left to learn. So far only the first step, as it were, has been taken in the study of the speech of apes. As we grow more familiar with their sounds, the difficulty of understanding them becomes correspondingly less. I have not been disappointed in what I hoped to learn from these animals. The total number of words that I have been able to distinguish up to this time is about one hundred. Of these I have interpreted about thirty. Of late I have given no attention to the small monkeys. I shall resume the study of them at some future day, as it forms an essential part of the task which I have assumed. The fact that animals are able to interpret human speech is of itself proof that they possess the speech instinct. But a careful study of their habits reveals the further proof that they possess and exercise the faculty of speech. In addition to these facts they sometimes acquire new speech sounds. This is progress. If an ape can take one step in the development of speech, why may he not take two? One instance which is cited in the chapter treating of Moses, my ape companion, I

regard as the climax of all my efforts in the study or training of apes, and that is the fact that I succeeded in teaching him one word of human speech. This alone is sufficient to demonstrate that the animal has within him the resources of speech.

In conclusion I again assert that the sounds uttered by these apes have the characteristics of human speech. The speaker is conscious of the meaning of the sound used. The pitch and volume of the voice are regulated to suit the condition under which it is used. The ape knows the value of sound as a medium of conveying thought. These and many other facts show that their sounds are truly speech.

To compare the mental faculties of the wild ape to the domesticated dog is not a fair standard by which to measure their respective abilities. The dog has acquired much by his long and intimate association with man. If the ape were placed under domestication, and kept there as long as the dog has been, he would be as far superior to the dog in point of sagacity as he is by nature above the wild progenitors of the canine race.

CHAPTER XIII

Moses — His Capture — His Character — His Affections — His Food — His Daily Life — Anecdotes of Him

DURING my sojourn in the forest I had a fine young chimpanzee, which was of ordinary intelligence, and he was of more than ordinary interest, because of his history. I gave him the name Moses, — not in derision of the historic Israelite of that name, but owing to the circumstances of his capture and his life. He was found all alone in a wild papyrus swamp of the Ogowé River. No one knew who his parents were. The low bush in which he was crouched when discovered was surrounded by water, and thus the poor little waif was cut off from the adjacent dry land. As the native approached to capture him, the timid little ape tried to climb up among the vines above him and escape; but the agile hunter seized him. At first the chimpanzee screamed and struggled to get away, because he had perhaps never before seen a man; but when he found that he was not going to be hurt, he put his frail arms around his captor and clung to him as a friend. Indeed, he seemed glad to be rescued from such a dreary place, even by such a strange creature as a man. For a moment the man feared that the cries of his young prisoner might call its mother to the rescue, and possibly a band of others; but if she heard, she did not respond; so

he tied the baby captive with a thong of bark, put him into a canoe, and brought him away to the village. There he supplied him with food and made him quite cosy. The next day he was sold to a trader. About this time I passed up the river on my way to the jungle in search of the gorilla and other apes. Stopping at the station of the trader, I bought the young chimpanzee and took him along with me. We soon became the best of friends and constant companions.

It was supposed that the mother chimpanzee had left her babe in the tree while she went off in search of food, and had wandered so far away that she lost her bearings and could not again find him. He appeared to have been for a long time without food, and may have been crouching there in the forks of that tree for a day or two; but this was only inferred from his hunger, as there was no way to determine how long he had remained, or even how he got there.

I designed to bring Moses up in the way that good chimpanzees ought to be brought up; so I began to teach him good manners, in the hope that some day he would be a shining light to his race, and aid me in my work among them. To that end I took great care of him, and devoted much time to the study of his natural manners, and to improving them as much as his nature would allow.

I built him a neat little house within a few feet of my cage. It was enclosed with a thin cloth, and at the door I hung a curtain to keep out mosquitoes and other insects. It was supplied with plenty of soft, clean leaves, and some canvas bed-clothing. It was covered over with

NATIVE CARRIER BOY

(From a Photograph.)

a bamboo roof, and was suspended a few feet from the ground, so as to keep out the ants.

Moses soon learned to adjust the curtain and go to bed without my aid. He would lie in bed in the morning until he heard me or the boy stirring about the cage, when he would poke his little black head out and begin to jabber for his breakfast. Then he would climb out and come to the cage to see what was going on. He was not confined at all, but quite at liberty to go about in the forest, climb the trees and bushes, and have a good time of it. He was jealous of the boy, and the boy was jealous of him, especially when it came to a question of eating. Neither of them seemed to want the other to eat anything that they mutually liked, and I had to act as umpire in many of their disputes on that grave subject, which seemed to be the central thought of both of them. I frequently allowed Moses to dine with me, and I never knew him to refuse, or to be late in coming, on such occasions; but his table etiquette was not of the best order. I gave him a tin plate and a wooden spoon. He did not like to use the latter, but seemed to think that it was pure affectation for any one to eat with such an awkward thing. He always held it in one hand while he ate with the other or drank his soup out of the plate. It was such a task to get washing done in that part of the world, that I resorted to all means of economy in that matter, and for a tablecloth I used a leaf of newspaper, when I had one. To tear that paper afforded Moses an amount of pleasure that nothing else would, and in this act his conduct was more like that of a naughty child than in anything else he did. When he

would first take his place at the table, he would behave in a nice and becoming manner; but having eaten till he was quite satisfied, he usually became rude and saucy. He would slyly put his foot up over the edge of the table, and catch hold of the corner of the paper, meanwhile watching me closely, to see if I was going to scold him. If I remained quiet, he would tear the paper just a little and wait to see the result. If no notice was taken of that, he would tear it a little more, but keep watching my face to see when I observed him. If I raised my finger to him, he quickly let go, drew his foot down, and began to eat. If nothing more was done to stop him, the instant my finger and eyes were dropped, that dexterous foot was back on the table and the mischief was resumed with more audacity than before. When he carried his fun too far, I made him get down from the table and sit on the floor. This humiliation he did not like, at best; but when the boy grinned at him for it, he would resent it with as much temper as if he had been poked with a stick. He certainly was sensitive on this point, and evinced an undoubted dislike to being laughed at.

Another habit that Moses had was putting his fingers in the dish to help himself. He had to be watched all the time to prevent this, and seemed unable to grasp any reason why he should not be allowed to do so. He always appeared to think my spoon, knife, and fork were better than his own. On one occasion he persisted in begging for my fork until I gave it to him. He dipped it into his soup, held it up, and looked at it as if disappointed. He again stuck it into his soup. Then he examined it, as

if to see how I lifted my food with it. He did not seem to notice that I used it in lifting meat instead of soup. After repeating this three or four times he licked the fork, smelt it, and then deliberately threw it on the floor, — as if to say, "That's a failure." He then leaned over and drank his soup from the plate.

The only thing that he cared much to play with was a tin can in which I kept some nails. For this he had a kind of mania. He never tired of trying to remove the lid. When given the hammer and a nail, he knew what they were for, and would set to work to drive the nail into the floor of the cage or into the table; but he hurt his fingers a few times, and after that he stood the nail on its flat head, removed his fingers, and struck it with the hammer; but of course he never succeeded in driving it into anything.

A bunch of sugarcane was kept for Moses to eat when he wanted it. To aid him in tearing the hard shell away from it, I kept a club to bruise it. Sometimes he would go and select a stalk of cane, carry it to the block, take the club in both hands, and try to mash the cane; but as the jar of the stroke often hurt his hands, he learned to avoid this by letting go as the club descended. He never succeeded in crushing the cane, but would continue his efforts until some one came to his aid. At other times he would drag a stalk of the cane to the cage and poke it through the wires, then bring the club and poke it through to get me to mash the cane for him.

From time to time I received newspapers sent me from home. Moses could not understand what induced me to

sit holding that thing before me, but he wished to try it and see. He would take a leaf of it, and hold it up before him with both hands, just as he saw me do; but instead of looking at the paper, he kept his eyes, most of the time, on me. When I turned my paper over, he did the same thing with his, but half the time it was upside down. He did not appear to care for the pictures, or notice them, except a few times he tried to pick them off the paper. One large cut of a dog's head, when held at a short distance from him, he appeared to regard with a little interest, as if he recognized it as that of an animal of some kind; but I cannot say just what his ideas concerning it really were.

Chimpanzees are not usually so playful or so funny as monkeys, but they have a certain degree of mirth in their nature, and at times display a marked sense of humor. Moses was fond of playing peek-a-boo. He did not try to conceal his body from view, but put his head behind a box or something to hide his eyes. Then he would cautiously peep at me. He would often put his head behind one of the large tin boxes in the cage, leaving his whole body visible. In this attitude he would utter a peculiar sound, then draw his head out and look to see if I were watching him. If not, he would repeat the act a few times and then resort to some other means of amusing himself. But if he could gain attention the romp began. He found great pleasure in this simple pastime. He would roll over, kick up his heels, and grin with evident delight. His favorite hour for this sport was in the early part of the afternoon. I spent much time in entertaining him in this way and in

many others, feeling amply repaid by the gratification it afforded him. I could not resist his overtures to play, as he was my only companion; and, living in that solitary manner, we found mutual pleasure in such diversions.

Another occasion on which he used to peep at me was when he lay down to take his midday nap. For this I had made him a little hammock. It was suspended by wires hooked in the top of my cage, so as to be removable when not in use. I always hung this near me, so I could swing him to sleep like a child. He liked this very much, and I liked equally well to indulge him in it. When he was laid in this little hammock, he was usually covered up with a small piece of canvas, and in spreading it over him I sometimes laid the edge of it over his eyes. But this caused him to suspect me of having some motive in doing so. Then he would reach his finger up, catch the edge of the cloth and gently draw it down, so as to see what I was doing. If he found that he was detected, he quickly released the cloth, and cuddled down as though he had drawn it down by accident; but the little rogue knew just as well as I did that it was not fair to peep.

I also made him another hammock, which was hung a few yards from the cage. It was intended that he should get into this without bothering me. But he did not seem to care for it, until I brought a young gorilla to live with us in our jungle home. As Moses had never used this hammock, I assigned it to the new member of the household. Whenever the gorilla got into the hammock there was a small row about it. Moses would never allow him to occupy it in peace. He seemed to know that it was

his own by right, and the gorilla was regarded as an intruder. He would push and shove the gorilla, grunt and whine and quarrel until he got him out of it. But after doing so he would leave the hammock and climb up into the bushes, or go scouting about, hunting something to eat. He only wanted to dispossess the intruder, for whom he nursed an inordinate jealousy. He never went about the gorilla's little house, which was near another side of my cage. Even after the gorilla died Moses kept aloof from its house.

As a rule, I took Moses with me in my rambles into the forest, and I found him to be quite useful in one way. His eyes were like the lens of a camera; nothing escaped them. When he discovered anything in the jungle, he always made it known by a peculiar sound. He could not point it out with his finger, but by watching his eyes the object could often be located. Frequently during these tours the ape rode on my shoulders. At other times the boy carried him; but occasionally he was put down on the ground to walk. If we traveled at a very slow pace, and allowed him to stroll along at leisure, he was content to do so; but if hurried beyond a certain gait, he always made a display of temper. He would turn on the boy and attack him if possible; but if the boy escaped, the angry little ape would throw himself down on the ground, scream, kick, and beat the earth with his own head and hands, in the most violent and persistent manner. He sometimes did the same way when not allowed to have what he wanted. His conduct was exactly like that of a spoiled or ugly child.

He had a certain amount of ingenuity, and often evinced a degree of reason which was rather unexpected. It was not a rare thing for him to solve some problem that involved a study of cause and effect, but this was always in a limited degree. I would not be understood to mean that he could work out any abstract problem, such as belongs to the realm of mathematics, but only simple, concrete problems, the object of which was present.

On one occasion while walking through the forest, we came to a small stream of water. The boy and myself stepped across it, leaving Moses to get over without help. He disliked getting his feet wet, and paused to be lifted across. We walked a few steps away and waited. He looked up and down the branch to see if there was any way to avoid it. He walked back and forth a few yards, but found no way to cross. He sat down on the bank and declined to wade. After a few moments he waddled along the bank about ten or twelve feet to a clump of tall, slender bushes growing by the edge of the stream. Here he halted, whined, and looked up thoughtfully into them. At length he began to climb one of them that leaned over the water. As he climbed up, the stalk bent with his weight, and in an instant he was swung safely across the little brook. He let go the plant, and came hobbling along to me with a look of triumph on his face that plainly indicated he was fully conscious of having performed a very clever feat.

One dark, rainy night I felt something pulling at my blanket and mosquito bar. I could not for a moment imagine what it was, but knew that it was something on

A STROLL IN THE JUNGLE—MR. GARNER, MOSES, AND NATIVE BOY

(From a Photograph.)

the outside of my cage. I lay for a few seconds, and then I felt another strong pull. In an instant some cold, damp, rough thing touched my face. I found it was his hand poked through the meshes and groping about for something. I spoke to him, and he replied with a series of plaintive sounds which assured me that something must be wrong. I rose and lighted a candle. His little brown face was pressed up against the wires, and wore a sad, weary look. He could not tell me in words what troubled him, but every sign, look, and gesture bespoke trouble. Taking the candle in one hand and my revolver in the other, I stepped out of the cage and went to his domicile. There I discovered that a colony of ants had invaded his quarters. These ants are a great pest when they attack anything, and when they make a raid on a house the only thing to be done is to leave it until they have devoured everything about it that they can eat. When they leave a house there is not a roach, rat, bug, or insect left in it. As the house of Moses was so small, it was not difficult to dispossess the ants by saturating it with kerosene. This was quickly done, and the little occupant was allowed to return and go to bed. He watched the procedure with evident interest, and seemed perfectly aware that I could rid him of his savage assailants. In a wild state he would doubtless have abandoned his claim and fled to some other place, without an attempt to drive the ants away; but in this instance he had acquired the idea of the rights of possession.

Moses was especially fond of corned beef and sardines, and would recognize a can of either as far away as he could

see it. He also knew the instrument used in opening the cans. But he did not appear to appreciate the fact that when the contents had once been taken out it was useless to open the can again; so he often brought the empty cans that had been thrown into the bush, got the can-opener down, and wanted me to use it for him! I never saw him try to open a can himself otherwise than with his fingers. Sometimes, when about to prepare my own meals, I would open the case in which I kept stored a supply of canned meats and allow Moses to select a can for the purpose. He never failed to pull out one of the cans of beef bearing the blue label. If I put it back, he would again select the same kind, and he could not be deceived in his choice. It was not accidental, because he would hunt until he found the right sort. I don't know what he thought when his choice was not served for dinner. I often exchanged it for another kind without consulting him.

I kept my supply of water in a large jug, which was placed in the shade of the bushes near the cage. I also kept a small pan for Moses to drink out of. He would sometimes ask for water by using his own word for it. He would place his pan by the side of the jug and repeat the sound a few times. If he was not attended to, he proceeded to help himself. He could take the cork out of the jug quite as well as I could. He would then put his eye to the mouth of the vessel and look down into it to see if there was any water. Of course the shadow of his head would darken the interior of the jug so that he could not see anything. Then, removing his eye from the mouth of it, he would poke his hand into it. But I

reproved him for this until I broke him of the habit. After a careful examination of the jug he would try to pour the water out. He knew how it ought to be done, but was not able to handle the vessel. He always placed the pan on the lower side of the jug; then he leaned the jug towards the pan and let go. He would rarely ever get the water into the pan, but always turned the jug with the neck down grade. As a hydraulic engineer he was not a great success, but he certainly knew the first principles of the science.

I tried to teach Moses to be cleanly, but it was a hard task. He would listen to my precepts as if they had made a deep impression, but he would not wash his hands of his own accord. He would permit me or the boy to wash them, but when it came to taking a bath or even wetting his face, he was a rank heretic on the subject, and no amount of logic would convince him that he needed it. When he was given a bath he would scream and fight during the whole process. When it was finished he would climb upon the roof of the cage and spread himself out in the sun. These were the only occasions on which I ever knew him to get upon the roof. I don't know why he disliked the bath so much. He did not mind getting wet in the rain, but rather seemed to like that.

He had a great dislike for ants and certain large bugs. Whenever one such came near him he would talk like a magpie, and brush at the insect with his hands until he got rid of it. He always used a certain sound for this kind of annoyance; it differed slightly from those I have described as warning.

Moses tried to be honest, but he was affected with a species of kleptomania and could not resist the temptation to purloin anything that came in his way. The small stove upon which I prepared my food was placed on a shelf in one corner of the cage, about halfway between the floor and the top. Whenever anything was set on the stove to cook, he had to be watched to keep him from climbing up the side of the cage, reaching his arm through the meshes, and stealing the food. He was sometimes very persevering in this matter. One day I set a tin can of water on the stove to heat, in order to make some coffee. He silently climbed up, reached his hand through, stuck it in the can, and began to search for anything it might contain. I threw out the water, refilled the can, and drove him away. In a few minutes he returned and repeated the act. I had a piece of canvas hung up on the outside of the cage to keep him away. The can of water was placed on the stove for the third time, but within a minute he found his way by climbing up under the curtain, and between that and the cage. I determined to teach him a lesson. He was allowed to explore the can, but finding nothing, he withdrew his hand and sat there clinging to the side of the cage. Again he tried, but found nothing. The water was getting warmer, but was still not hot. At length, for the third or fourth time, he stuck his hand in it up to the wrist. By this time the water was so hot that it scalded his hand. It was not severe enough to do him any harm, but quite enough so for a good lesson. He jerked his hand out with such violence that he threw the cup over and spilt the water all over that side of the cage. From that time to the

end of his life he always refused anything that had steam or smoke about it. If anything having steam or smoke was offered him at the table, he would climb down at once and retire from the scene. Poor little Moses! I knew beforehand what would happen. I did not wish to see him hurt, but nothing else would serve to impress him with the danger and keep him out of mischief.

Anything that he saw me eat he never failed to beg. No matter what he had himself, he wanted to try everything else that he saw me eat. One thing in which these apes appear to be wiser than man is, that when they eat or drink enough to satisfy their wants they quit. Men sometimes do not. Apes never drink water or anything else during their meal, but having finished eating, they want, as a rule, something to drink. The native custom is the same. I have never known the native African to use any kind of diet drink, but always when he has finished eating he takes a draught of water.

Moses knew the use of nearly all the tools that I carried with me in the jungle. He could not use them for the purpose for which they were intended, and I do not know to what extent he appreciated their use; but he knew quite well the manner of using them. I have mentioned the incident of his using the hammer and nails; but he also knew the way to use the saw; however, he always applied the back of it, because the teeth were too rough; but he gave it the motion. When allowed to have it, he would put the back of it across a stick and saw with the energy of a man on a big salary. When given a file, he would file everything that came in his way. If he had applied himself in learning

to talk human words as closely and with as much zeal as he tried to use my pliers, he would have succeeded in a very short time.

Whether these creatures are actuated by reason or by instinct in such acts as I have mentioned, the caviller may settle for himself; but the actions accomplish the purpose of the actors in a logical and practical manner, and they are perfectly conscious of the fact.

CHAPTER XIV

The Character of Moses — He Learns a Human Word — He Signs His Name to a Document — His Illness — Death

I KNOW of nothing in the way of affection and loyalty among animals that can exceed the devotion of my Moses. Not only was he tame and tractable, but he never tired of caressing me and being caressed by me. For hours together he would cling to my neck, play with my ears, lips, and nose, bite my cheek, and hug me like a last hope. He was never willing for me to put him down from my lap, never willing for me to leave my cage without him, never willing for me to caress anything else but himself, and never willing for me to discontinue caressing him. He would cry and fret for me whenever we were separated; and I must confess that my absence from him during a journey of three weeks hastened his sad and untimely death.

From the second day after we became associated he appeared to regard me as the one in authority. He would not resent anything I did to him. I could take his food out of his hands, but he would permit no one else to do so. He would follow me and cry after me like a child. As time went by, his attachment grew stronger and stronger. He gave every evidence of pleasure at my attentions, and evinced a certain degree of appreciation and gratitude in return. He would divide any morsel of food with me.

This is, perhaps, the highest test of the affection of any animal. I cannot affirm that such an act was genuine benevolence, or an earnest of affection in a true sense of the term ; but nothing except deep affection or abject fear impels such actions in animals ; and certainly fear was not his motive.

There were others whom he liked and made himself familiar with ; there were some that he feared, and others that he hated ; but his manner towards me was that of deep affection. It was not alone in return for the food he received, for my boy gave him food more frequently than I did, and many others from time to time fed him. His attachment was like an infatuation that had no apparent motive ; it was unselfish and supreme.

The chief purpose of my living among the animals being to study the sounds they utter, I gave strict attention to those made by Moses. For a time it was difficult to detect more than two or three distinct sounds, but as I grew more and more familiar with them I could detect a variety of them, and by constantly watching his actions and associating them with his sounds I learned to interpret certain ones to mean certain things.

In the course of my sojourn with him I learned one sound that he always uttered when he saw anything that he was familiar with, — such as a man or a dog, — but he could not tell me which of the two it was. If he saw anything strange to him, he could tell me ; but not so that I knew whether it was a snake, or a leopard, or a monkey ; yet I knew that it was some strange creature. I learned a certain word for food, hunger, eating, etc., but he could not

go into any details about it, except that a certain sound indicated "good" or "satisfaction," and another meant the opposite.

Among the sounds that I learned was one that is used by a chimpanzee in calling another to come to it. Some of the natives assured me that the mothers always use it in calling their young to them. When Moses wandered away from the cage into the jungle, he would sometimes call me with this sound. I cannot express it in letters of the alphabet, nor describe it so as to give a very clear idea of its character. It is a single sound, or word of one syllable, and can be easily imitated by the human voice. At any time that I wanted Moses to come to me I used this word, and the fact that he always obeyed it by coming confirmed my opinion as to its meaning. I do not think that when he addressed it to me he expected me to come to him, but he perhaps wanted to locate me in order to be guided back to the cage by means of the sound. As he grew more familiar with the surrounding forest he used it less frequently, but he always employed it in calling me or the boy. When he was called by it he answered with the same sound; but one fact that we noticed was, that if he could see the one who called he never made any reply. He would obey the call, but not answer. He probably thought that if he could see the one who called he could be seen by him, and it was therefore useless to reply.

The speech of these animals is very limited, but it is sufficient for their purpose. It is none the less real because of its being restricted, but it is more difficult for man to learn, because his modes of thought are so much

more ample and distinct. Yet when one is reduced to the necessity of making his wants known in a strange tongue he can express many things in a very few words. I was once thrown among a tribe of whose language I knew less than fifty words, but with little difficulty I succeeded in conversing with them on two or three topics. Much depends upon necessity, and more upon practice. In talking to Moses I used his own language mostly, and was surprised at times to see how readily we understood each other. I could repeat about all the sounds he made except one or two, but I was not able in the time we were together to interpret all of them. These sounds were more than a mere series of grunts or whines, and he never confused them in their meaning. When any one of them was properly delivered to him, he clearly understood and acted upon it.

It had never been any part of my purpose to teach a monkey to talk; but after I became familiar with the qualities and range of the voice of Moses, I determined to see if he might not be taught to speak a few simple words of human speech. To effect this in the easiest way and shortest time, I carefully observed the movements of his lips and vocal organs in order to select such words for him to try as were best adapted to his ability.

I selected the word *mamma*, which may be considered almost a universal word of human speech; the French word *feu*, fire; the German word *wie*, how; and the native Nkami word *nkgwe*, mother. Every day I took him on my lap and tried to induce him to say one or more of these words. For a long time he made no effort to learn them;

but after some weeks of persistent labor and a bribe of corned beef, he began to see dimly what I wanted him to do. The native word quoted is very similar to one of the sounds of his own speech, which means "good" or "satisfaction." The vowel element differs in them, and he was not able in the time he was under tuition to change them; but he distinguished them from other words.

In his attempt to say *mamma* he worked his lips without making any sound, although he really tried to do so. I believe that in the course of time he would have succeeded. He observed the movement of my lips and tried to imitate it, but he seemed to think that the lips alone produced the sound. With *feu* he succeeded fairly well, except that the consonant element, as he uttered it, resembled "v" more than "f," so that the sound was more like *vu*, making the "u" short as in "nut." It was quite as nearly perfect as most people of other tongues ever learn to speak the same word in French, and, if it had been uttered in a sentence, any one knowing that language would recognize it as meaning fire. In his efforts to pronounce *wie* he always gave the vowel element like German "u," with the *umlaut*, but the "w" element was more like the English than the German sound of that letter.

Taking into consideration the fact that he was only a little more than a year old, and was in training less than three months, his progress was all that could have been desired, and vastly more than had been hoped for. It is my belief that, had he lived until this time, he would have mastered these and other words of human speech to the

satisfaction of the most exacting linguist. If he had only learned one word in a whole lifetime, he would have shown at least that the race is capable of being improved and elevated in some degree.

Another experiment that I tried with him was one that I had used before in testing the ability of a monkey to distinguish forms. I cut a round hole in one end of a board and a square hole in the other, and made a block to fit into each one of them. The blocks were then given to him to see if he could fit them into the proper holes. After being shown a few times how to do this, he fitted the blocks in without difficulty ; but when he was not rewarded for the task by receiving a morsel of corned beef or a sardine, he did not attempt it. He did not care to work for the fun alone.

In colors he had but little choice, unless it was something to eat ; but he could distinguish them with ease if the shades were pronounced. I had no means of testing his taste for music or sense of musical sounds.

I must here take occasion to mention one incident in the life of Moses, such as perhaps never before occurred in the life of any chimpanzee. While it may not be of scientific value, it is at least amusing.

While living in the jungle I received a letter enclosing a contract to be signed by myself and a witness. Having no means of finding a witness to sign the paper, I called Moses from the bushes, placed him at the table, gave him a pen, and had him sign the document as witness. He did not write his name himself, as he had not mastered the art of writing ; but he made his cross mark between the names,

as many a good man had done before him. I wrote in the blank the name,

His
"MOSES X NTYIGO"
mark

(the cross mark being omitted), and had him with his own hand make the cross as it is legally done by persons who cannot write. With this signature the contract was returned in good faith to stand the test of the law courts of civilization; and thus for the first time in the history of the race a chimpanzee signed his name.

When I prepared to start on a journey across the Esyira country, it was not practicable for me to take Moses along, so I arranged to leave him in charge of a missionary. Shortly after my departure the man was taken with fever, and the chimpanzee was left to the care of a native boy belonging to the mission. The little prisoner was kept confined by a small rope attached to his cage. This was done in order to keep him out of mischief. It was during the dry season, when the dews are heavy and the nights chilly; and the winds at that season are fresh and frequent.

Within a week after I had left him he contracted a severe cold. This soon developed into acute pulmonary troubles of a complex type, and he began to decline. After an absence of three weeks and three days I returned and found him in a condition beyond the reach of treatment. He was emaciated to a living skeleton; his eyes were sunken deep into their orbits, and his steps were feeble

and tottering; his voice was hoarse and piping; his appetite was gone, and he was utterly indifferent to everything around him.

During my journey I had secured a companion for him, and when I disembarked from the canoe I hastened to him with this new addition to our little family. I had not been told that he was ill, and, of course, was not prepared to see him looking so ghastly. When he discovered me approaching, he rose up and began to call me, as he had been wont to do before I left him; but his weak voice was like a death-knell to my ears. My heart sunk within me as I saw him trying to reach out his long, bony arms to welcome my return. Poor, faithful Moses! I could not repress the tears of pity and regret at this sudden change, for to me it seemed the work of a moment. I had last seen him in the vigor of a strong and robust youth, but now I beheld him in the decrepitude of a feeble senility. What a transformation!

I diagnosed his case as well as I was able and began to treat him, but it was evident that he was so far gone that I could not expect him to recover. My conscience smote me for having left him, yet I felt that I had not done wrong. It was not neglect or cruelty for me to leave him while I went in pursuit of the chief object of my search, and I had no cause to reproach myself for having done so. But emotions that are stirred by such incidents are not to be controlled by reason or hushed by argument, and the pain caused me was more than I can tell.

If I had done wrong, the only restitution possible for me to make was to nurse him patiently and tenderly to

the end, or till health and strength should return. This was conscientiously done, and I have the comfort of knowing that the last sad days of his life were soothed by every care that kindness could suggest. Hour after hour during that time he lay silent and content upon my lap. That appeared to be a panacea to all his pains. He would roll up his dark brown eyes and look into my face, as if to be assured that I had been restored to him. With his long fingers he stroked my face as if to say that he was again happy. He took the medicines I gave him as if he knew their purpose and effect. His suffering was not intense, and he bore it like a philosopher. He seemed to have some vague idea of his own condition, but I do not know that he foresaw the result. He lingered on from day to day for a whole week, slowly sinking and growing feebler; but his love for me was manifest to the last, and I dare confess that I returned it with all my heart.

Is it wrong that I should requite such devotion and fidelity with reciprocal emotion? No. I should not deserve the love of any creature if I were indifferent to the love of Moses. That affectionate little creature had lived with me in the dismal shadows of that primeval forest for many long days and dreary nights; had romped and played with me when far away from the pleasures of home; and had been a constant friend, alike through sunshine and storm. To say that I did not love him would be to confess myself an ingrate and unworthy of my race.

The last spark of life passed away in the night. Death was not attended by acute pain or struggling; but, falling into a deep and quiet sleep, he woke no more.

Moses will live in history. He deserves to do so, because he was the first of his race that ever spoke a word of human speech ; because he was the first that ever conversed in his own language with a human being ; and because he was the first that ever signed his name to any document. Fame will not deny him a niche in her temple among the heroes who have led the races of the world.

CHAPTER XV

Aaron — His Capture — Mental Powers — Acquaintance with Moses — His Conduct during Moses' Illness

HAVING arranged my affairs in Ferran Vaz so as to make a journey across the great forest that lies to the south of the Nkami country and separates it from that of the Esyira tribe, I set out by canoe to a point on the Rembo about three days' journey from the place where I had so long lived in my cage. At a village called Tyimba I disembarked and, after a journey of five days and a delay of three more days, caused by an attack of fever, I arrived at a trading station near the head of a small river called Noogo. It empties into the sea at Sette Kama, about four degrees south of the equator. The trading post is about a hundred miles inland, at a native village called Ntyi-ne-nye-ni, — which, strange to say, means, in the native tongue, "Some Other Place."

About the time I reached the trading post, two Esyira hunters arrived from a distant village and brought with them a smart young chimpanzee of the kind known in that country as the kulu-kamba. He was quite the finest specimen of his race that I have ever seen. His frank, open countenance, big brown eyes, and shapely physique, free from mark or blemish of any kind, would attract the notice of any one not absolutely stupid. It is not derogatory to

the memory of Moses that I should say this, nor does it lessen my affection for him. Our passions are not moved by visible forces nor measured by fixed units. They disdain all laws of logic, spurn the narrow bounds of reason, and conform to no theory of action.

As soon as I saw this little ape I expressed a desire to own him. So the trader in charge bought him and presented him to me. As it had been intended that he should be the friend and ally of Moses, although not his brother, I conferred upon him the name of Aaron. The two names are so intimately associated in history that the mention of one always suggests the other.

Aaron was captured in the Esyira jungle by the hunters, about one day's journey from the place where I secured him ; and with this event began a series of sad scenes in the brief but varied life of this little hero such as seldom come within the experience of any creature.

At the time of his capture his mother was killed in the act of defending him from the cruel hunters. When she fell to the earth, mortally wounded, this brave little fellow stood by her trembling body defending it against her slayers, until he was overcome by superior force, seized by his captors, bound with strips of bark, and carried away into captivity. No human can refrain from admiring his conduct in this act, whether it was prompted by the instinct of self-preservation or by a sentiment of loyalty to his mother, for he was exercising that prime law of nature which actuates all creatures to defend themselves against attack, and his wild, young heart throbbed with sensations like to those of a human under similar ordeal.

I do not wish to appear sentimental by offering a rebuke to those who indulge in the sport of hunting; but much cruelty could be obviated without losing any of the pleasure of the hunt. I have always made it a rule to spare the mother with her young. Whether or not animals feel the same degree of mental and physical pain as man, they do, in these tragic moments, evince for one another a certain amount of concern. This imparts a tinge of sympathy that must appeal to any one who is not devoid of every sense of mercy. It is true that it is often difficult — and sometimes impossible — to secure the young by other means; but the manner of getting them often mars the pleasure of having them; and while Aaron was to me a charming pet and a valuable subject for study, I confess the story of his capture always touched me in a tender spot.

I may here mention that the few chimpanzees that reach the civilized parts of the world are but a small percentage of the great number that are captured. Some die on their way to the coast, others die after reaching it, and scores of them die on board the ships to which they have been consigned for various ports of Europe and other countries. Death results not often from neglect or cruelty, but usually from a change of food, climate, or condition; yet the creature suffers just the same whether the cause is from design or accident. One fruitful source of death among them is pulmonary trouble of various types.

One look at the portrait of Aaron will impress any one with the high mental qualities of this little captive; but to see and study them in life would convince a heretic of his superior character. In every look and gesture there was a

touch of the human that no one could fail to observe. The range of facial expression surpassed that of any other animal I have ever studied. In repose his quaint face wore a look of wisdom becoming to a sage; while in play it was crowned with a grin of genuine mirth. The deep, searching look he gave to a stranger was a study for the psychologist. The serious, earnest look of inquiry when he was perplexed would have amused a stoic. All these changing moods were depicted in his mobile face with such intensity as to leave no room to doubt the activity of certain faculties of the mind to a degree far beyond that of animals in general; and his conduct in many instances showed the exercise of mental powers of a higher order than that limited agency known as instinct. In addition to these facts, his voice was of better quality and more flexible than that of any other specimen I have ever known. It was clear and smooth in uttering sounds of any pitch within its scope, while the voices of most of them are inclined to be harsh or husky, especially in sounds of high pitch.

Before leaving the village where I secured him, I made a kind of sling for him to be carried in. It consisted of a short canvas sack, having two holes cut in the bottom for his legs to pass through. To the top of this was attached a broad band of the same cloth by which to hang it over the head of the carrier boy to whom the little prisoner was consigned. This afforded the ape a comfortable seat, and at the same time reduced the labor of carrying him. It left his arms and legs free, so he could change his position and rest, while it also allowed the boy the use of his own hands in passing any difficult place in the jungle along the way.

From the trading post to the Rembo was a journey of five days on foot. Along the way were a few straggling villages; but most of the route lay through a wild and desolate forest, traversed by low, broad marshes, through which wind shallow sloughs of filthy, greenish water, seeking its way among bending roots and fallen leaves. From the foul bosom of these marshes rise the effluvia of decaying plants, breeding pestilence and death. Here and there across the dreary tracts is found the trail of elephants, where the great beasts have broken their tortuous way through the dense barriers of bush and vine. These trails serve as roads for the native traveler and afford the only way of crossing these otherwise trackless jungles. The only means of passing the dismal swamps is to wade through the thin, slimy mud, often more than knee-deep, and sometimes extending many hundred feet in width. The traveler is intercepted at almost every step by the tangled roots of mangrove trees under foot or clusters of vines hanging from the boughs overhead.

Such was the route we came. But Aaron did not realize how severe was the task of his carrier in trudging his way through such places, and the little rogue often added to the labor by seizing hold of limbs or vines that hung within his reach in passing. Thus he retarded the progress of the boy, who strongly protested against the ape's amusing himself in this manner. The latter seemed to know of no reason why he should not do so, and the former did not deign to give one. So the quarrel went on until we reached the river; but by that time each of them had imbibed a hatred for the other that nothing in the future ever allayed.

Neither of them ever forgot it while they were associated, and both of them evinced their aversion on all occasions. The boy gave vent to his dislike by making ugly faces at the ape, and the latter showed his resentment by screaming and trying to bite him. Aaron refused to eat any food given him by the boy, and the boy would not give him a morsel except when required to do so. At times the feud became ridiculous. It ended only with their final separation. The last time I ever saw the boy, I asked him if he wanted to go with me to my country to take care of Aaron; but he shook his head and said: "He's a bad man." This was the only person for whom I ever knew Aaron to conceive a deep and bitter dislike, but the boy he hated with his whole heart.

On my return to Ferran Vaz, where I had left Moses, I found him in a feeble state of health, as related elsewhere. When Aaron was set down before him, he merely gave the little stranger a casual glance, but held out his long, lean arms for me to take him in mine. His wish was gratified, and I indulged him in a long stroll. When we returned I set him down by the side of his new friend, who evinced every sign of pleasure and interest. He was like a small boy when there is a new baby in the house. He cuddled up close to Moses and made many overtures to become friends; but, while the latter did not repel them, he treated them with indifference. Aaron tried in many ways to attract the attention of Moses, or to elicit from him some sign of approval, but it was in vain.

No doubt Moses' manners were due to his sickness, and Aaron seemed to realize it. He sat for a long time holding

a banana in his hand and looking with evident concern into the face of his little sick cousin. At length he lifted the fruit to the lips of the invalid and uttered a low sound ; but the kindness was not accepted. The act was purely one of his own volition, to which he was not prompted by any suggestion from others. Every look and motion indicated a desire to relieve or comfort his friend. His manner was gentle and humane, and his face was an image of pity.

Failing to get any sign of attention from Moses, Aaron moved up closer to his side and put his arms around him in the manner that is shown in the picture of him with Elisheba. During the days that followed, he sat hour after hour in the same attitude, and refused to allow any one except myself to touch his patient ; but on my approach he always resigned him to me, while he watched with interest to see what I did for him.

Among other things, I gave Moses twice a day a tabloid of quinine and iron. This was dissolved in a little water and given to him in a small tin cup kept for the purpose. When not in use, the cup was hung upon a tall post. Aaron soon learned to know the use of it, and whenever I went to Moses, Aaron would climb up the post and bring me the cup to administer the medicine. It is not to be inferred that he knew anything about the nature or effect of the medicine, but he knew the use, and the only use, to which that cup was put.

Aaron displayed a marked interest during the act of administering the dose, and seemed to realize that it was intended for the good of the patient. He would sit close up to one side of the sick one and watch every movement

of his face, as if to see what effect was being produced, while the changing expressions of his own visage plainly showed that he was not indifferent to the actions of the patient.

While I was present with the sick one, Aaron appeared to feel a certain sense of relief from the care of him, and frequently went climbing about as if to rest and recreate himself by a change of routine. Whenever I took Moses for a walk, or sat with him on my lap, his little nurse was perfectly content; but the instant they were left alone, Aaron would again fold him in his arms, as if he felt it a duty to do so.

It was only natural that Moses, in such a state of health, should be cross and peevish at times, as human beings in a like condition are; but I never once saw Aaron resent anything Moses did, or display the least ill-temper towards him. On the contrary, his conduct was so patient and forbearing that it was hard to forego the belief that it was prompted by the same motives of kindness and sympathy that move the human heart to deeds of tenderness and mercy. At night, when they were put to rest, they lay cuddled up in each other's arms, and in the morning they were always found in the same close embrace.

But on the morning Moses died the conduct of Aaron was unlike anything I had observed before. When I approached their snug little house and drew aside the curtain, I found him sitting in one corner of the cage. His face wore a look of concern, as if he were aware that something awful had occurred. When I opened the door he neither moved nor uttered any sound. I do not know whether or not apes have any name for death, but they surely know what it is.

Moses was dead. His cold body lay in its usual place; but it was entirely covered over with the piece of canvas kept in the cage for bed-clothing. I do not know whether or not Aaron had covered him up, but he seemed to realize the situation. I took him by the hand and lifted him out of the cage, but he was reluctant. I had the body removed and placed on a bench about thirty feet away, in order to dissect it and prepare the skin and the skeleton for preservation.

When I proceeded to do this, I had Aaron confined to the cage, lest he should annoy and hinder me at the work; but he cried and fretted until he was released. It is not meant that he shed tears over the loss of his companion, for the lachrymal glands and ducts are not developed in these apes; but they manifest concern and regret, which are motives of the passion of sorrow. But being left alone was the cause of Aaron's sorrow. When released he came and took his seat near the dead body, where he sat the whole day long and watched the operation.

After this Aaron was never quiet for a moment if he could see or hear me, until I secured another of his kind as a companion for him; then his interest in me abated in a measure, but his affection for me remained intact. His conduct towards Moses always impressed me with the belief that he appreciated the fact that the sick one was in distress or pain, and while he may not have foreseen the result, when he saw death he certainly knew what it was. Whether it is instinct or reason that causes man to shrink from death, the same influence works to the same end in the ape; and the demeanor of this ape towards his later companion, Elisheba, only confirmed this opinion.

CHAPTER XVI

Aaron and Elisheba — Their Characteristics — Anecdotes — Jealousy of Aaron

FOUR days after the death of Moses I secured passage on a trading boat that came into the lake. The boat was a small affair, intended for towing canoes, and not in any way prepared to carry passengers or cargo; but I found room in one of the canoes to set the cage I had provided for Aaron, stowed the rest of my effects wherever space permitted, and embarked for the coast.

Our progress was slow and the journey tedious. The only passage out of the lake at that season is through a long, narrow, winding creek beset by sand bars, rocks, logs, and snags, and in some places overhung by low, bending trees. But the wild, weird scenery is grand and beautiful. Long lines of bamboo, broken here and there by groups of pendanus or stately palms; islands of lilies, and long sweeps of papyrus spreading away from the banks on either side; the gorgeous foliage of aquatic plants, drooping along the margin like a massive fringe and relieved by clumps of tall, waving grass, forms a perfect Eden for the birds and the monkeys that dwell among those scenes of eternal summer.

After a delay of eight days at Cape Lopez, we secured passage on a small French gunboat called the *Komo*, by which we came to Gaboon. There I found another kulu-

kamba. She was in the hands of a generous friend, Mr. Adolph Strohm, who presented her to me. I gave her to Aaron as a wife and called her Elisheba, — after the name of the wife of the great high-priest. Elisheba had been captured on the head-waters of the Nguni River, in about the same latitude that Aaron was found in, but more than a hundred miles to the east of that point and a few minutes north of it. I did not learn the history of her capture.

It would be difficult to find any two human beings more unlike in taste and temperament than these two apes were. Aaron was one of the most amiable of creatures; he was affectionate and faithful to those who treated him kindly; he was merry and playful by nature, and often evinced a marked sense of humor; he was fond of human society and strongly averse to solitude or confinement.

Elisheba was a perfect shrew. She often reminded me of certain women that I have seen who had soured on the world. She was treacherous, ungrateful, and cruel in every thought and act; she was utterly devoid of affection; she was selfish, sullen, and morose at all times; she was often vicious and always obstinate; she was indifferent to caresses, and quite as well content when alone as in the best of company. It is true that she was in poor health, and had been badly treated before she fell into my hands; but she was by nature endowed with a bad temper and depraved instincts.

It is not at all rare to see a vast difference of manners, intelligence, and temperament among specimens that belong to one species. In these respects they vary as much in proportion to their mental scope as human beings do; but

I have never seen, in any two apes of the same species, the two extremes so widely removed from one another.

While waiting at Gaboon for a steamer I had my own cage erected for the apes to live in, as it was large and gave them ample room for play and exercise. In one corner of it was suspended a small, cosy house for them to sleep in. It was furnished with a good supply of clean straw and some pieces of canvas for bedclothes. In the center of the cage was a swing, or trapeze, for them to use at their pleasure. Aaron found this a means of amusement, and often indulged in a series of gymnastics that might evoke the envy of a king of athletic sports.

Elisheba had no taste for such pastime, but her depravity could never resist the impulse to interrupt Aaron in his jolly exercise. She would climb up and contend for possession of the swing, until she would drive him away. Then she would perch herself on it and sit there for a time in stolid content; but she would neither swing nor play. Frequently during the day, when Aaron was lying quietly on the straw, she would go into the snug little house and raise a row with him by pulling the straw from under him, a handful at a time, and throwing it out of the box till there was none left in it. No matter what kind or quantity of food was given them, she always wanted the piece he had, and would fuss with him to get it; but having got it, she would sit holding it in her hand without eating it; for there were some things that he liked which she would not eat at all.

When we went out for a walk, no matter which way we started, Elisheba always contended to go some other way.

If I yielded, she would again change her mind and start off in some other direction. If forced to submit, she would scream and struggle as if for life. I cannot forego the belief that these freaks were due to a base and perverse nature, and I could find no higher motive in her stubborn conduct.

Aaron was very fond of her and rarely ever opposed her inflexible will. He clung to her and let her lead the way. I have often felt vexed at him because he complied so readily with her wishes. The only case in which he took sides against her was in her conduct towards me.

When I first secured her she had the temper of a demon, and with the smallest pretext she would assault me and try to bite me or tear my clothes. In these attacks Aaron was always with me, and the loyal little champion would fly at her in the greatest fury. He would strike her over the head and back with his hands, and bite her and flog her till she desisted. If she returned the blow he would grasp her hand and bite it, or strike her in the face. He would continue to fight till she submitted. Then he would celebrate his victory by jumping up and down in a most grotesque fashion, stamping his feet, slapping his hands on the ground, and grinning like a mask. He seemed as conscious of what he had done and as proud of it as any human could have been; but no matter what she did to others, he was always on her side of the question. If any one else annoyed her, he would always resent it with violence.

About the premises there were natives all the time passing to and fro, and these two little captives were objects of

special interest to them. They would stand by the cage hour after hour and watch them. The ruling impulse of nearly all natives appears to be cruelty, and they cannot resist the temptation to tease and torture anything that is not able to retaliate. They were so persistent in poking sticks at my chimpanzees that I had to keep a boy on watch all the time to prevent it ; but the boy could not be trusted, so I had to watch *him.*

In the rear of the room that I occupied was a window through which, from time to time, I watched the boy and the natives, and when anything went wrong I would call out to the boy. Aaron soon observed this and found that he could get my attention himself by calling out when any one annoyed him, and he also knew that the boy was put there as a protector. Whenever any of the natives came about the cage he would call for me in his peculiar manner, which I well understood and promptly responded to. The boy also knew what the call meant and would rush to the rescue. If I were away from the house and the boy were aware of the fact, he was apt to be tardy in coming to the relief of the ape, and sometimes he did not come at all. In the latter event the two would crawl into their house and pull down the curtain so that they could not be seen. Here they would remain until the natives had left or some one came to their aid.

Neither of the apes ever resented anything the natives did to them, unless they could see me about ; but whenever I came in sight they would make battle with their tormentors, and, if liberated from the big cage, they would chase the last one of them out of the yard. Aaron knew

perfectly well that they were not allowed to molest him or his companion; and when he knew that he had my support he was ready to carry on the war to a finish. But it was really funny to see how meek and patient he was when left to defend himself alone against the native with a stick, and then to note the change in him when he knew that he was backed up by a friend upon whom he could rely.

Mr. Strohm, the trader, previously mentioned, with whom I found hospitality at this place, kept a cow in the lot where the cage was. She was a small black animal, the first cow that Aaron had ever seen. He never ceased to contemplate her with wonder and with fear. If she came near the cage when no one was about, he hurried into his box and from there peeped out in silence until she went away. The cow was equally amazed at the cage and its strange occupants, though she was less afraid than they, and frequently came near to inspect them. She would stand a few yards away with her head lifted high, her eyes arched and her ears thrown forward, waiting for them to come out of that mysterious box. But they would not venture out of their asylum while she remained. At last, tired of waiting, she would switch her tail, shake her head, and turn away.

When taken out of the cage Aaron had special delight in driving the cow away; and if she was around he would grasp me by the hand and start towards her. He would stamp the ground with his foot, strike with all force with his long arm, slap the ground with his hand, and scream at her at the top of his voice. If she moved away, he would let go my hand and rush towards her as though he intended

to tear her up; but if the cow turned suddenly towards him, the little fraud would run to me, grasp my leg, and scream with fright. The cow was afraid of a man, and as long as she was followed by one she would continue to go; but when she discovered the ape to be alone in the pursuit, she would turn and look as if trying to determine what manner of thing it was. Elisheba never seemed to take any special notice of the cow except when she approached too near the cage, and then it was due to the conduct of Aaron that she made any fuss about it.

On board the steamer in which we sailed for home there was a young elephant that had been sent by a trader, for sale. He was kept on deck in a strong stall built for his quarters. There were wide cracks between the boards, and the elephant had the habit of reaching his trunk through them in search of anything he might find. With his long, flexible proboscis extended, he would twist and coil it in all manner of writhing forms. This was the crowning terror of the lives of those two apes; it was the bogie-man of their existence, and nothing could induce either of them to go near it. If they saw me approach it, they would scream and yell until I came away. If Aaron could get hold of me without getting too near the elephant, he clung to me until he almost tore my clothes, to keep me away from it. It was the one thing that Elisheba was afraid of, and the only one against which she ever gave me warning.

They did not manifest the same concern for others, but sat watching them without offering any protest. Even the stowaway who fed them and attended to their cage was

permitted to approach the elephant; but their solicitude for me was remarked by every man on board. I was never able to tell what their opinion of the thing was. They were much less afraid of the elephant when they could see all of him, than they were of the trunk when they saw that alone. They may have thought the latter to be a big snake; but this is only a conjecture.

At the beginning of the voyage I took six panels of my own cage and made a small cage for them. I taught them to drink water from a beer bottle with a long neck that could be put through a mesh of the wires. They preferred this mode of drinking and appeared to look upon it as an advanced idea. Elisheba always insisted on being served first; being a female, her wish was complied with. When she had finished, Aaron would climb up by the wires and take his turn. There is a certain sound, or word, which the chimpanzee always uses to express "good" or "satisfaction," and he made frequent use of it. He would drink a few swallows of the water and then utter the sound, whereupon Elisheba would climb up again and taste. She seemed to think it something better than she was drinking, but finding it the same as she had had, she would again give way for him. Every time he used the sound she would take another taste and turn away; but she never failed to try it if he uttered the sound.

The boy who cared for them on the voyage was disposed to play tricks on them. One of these ugly pranks was to turn the bottle up so that when they had finished drinking and took their lips away, the water would spill out and run down over them. Several times they declined to

drink from the bottle while he was holding it, but when he let it go, it hung in such a position that they could not get the water out of it at all. At length Aaron solved the problem by climbing up one side of the cage and getting on a level with the bottle; then he reached across the angle formed by the two sides of the cage and drank. In this position it was no matter to him how much the water ran out; it could n't touch him. Elisheba watched him until she quite grasped the idea; then she climbed up in the same manner and slaked her thirst. I scolded the boy for serving them with such cruel tricks; but it taught me another lesson of value concerning the mental resources of the chimpanzee, for no philosopher could have found a much better scheme to obviate the trouble than did this cunning little sage in the hour of necessity.

I have never regarded the training of animals as the true measure of their mental powers. The real test is to reduce the animal to his own resources, and see how he will conduct himself under conditions that present new problems. Animals may be taught to do many things in a mechanical way, and without any motive that relates to the action; but when they can work out the solution without the aid of man, it is only the faculty of reason that can guide them.

One thing that Aaron could never figure out was — what became of the chimpanzee that he saw in a mirror. I have seen him hunt for that mysterious ape an hour at a time. He once broke a piece off a mirror I had in trying to find the other fellow, but he never succeeded. I have held the glass firmly before him, while he put his face up close

to it — sometimes almost in contact. He would quietly gaze at the image and then reach his hand around the glass to feel for it. Not finding it, he would peep around the side of the glass and then look into it again. He would take hold of it and turn it around, lay it on the ground, look at the image again, and put his hand under the edge of the glass. The look of inquiry in that quaint face was so striking as to make one pity him. But he was hard to discourage. He resumed the search whenever he had the mirror.

Elisheba never worried herself much about it. When she saw the image in the glass she seemed to recognize it as one of her kind; but when it vanished she let it go without trying to find it. In fact, she often turned away from it as though she did not admire it. She rarely ever took hold of the glass, and she never felt behind it for the other ape.

Altogether Elisheba was an odd specimen of her tribe — eccentric and whimsical beyond anything I have ever known among animals; yet, with all her freaks, Aaron was fond of her and she afforded him company; but he was extremely jealous of her, and permitted no stranger to take any liberties with her with impunity. He did not object to their doing so with him. He rarely took offense at any degree of familiarity, for he would make friends with any one who was gentle with him; but he could not tolerate their attentions to her. She betrayed no sign of affection for him except when some one annoyed or vexed him; but in that event she never failed to take his part against all odds. At such times she became frantic with

rage, and if the cause was prolonged, she often for hours afterwards refused to eat.

On the voyage homeward there was on board another chimpanzee, belonging to a sailor who was bringing him home for sale. This one was about two years older than Aaron and fully twice as large. He was tame and gentle, but was kept in a close cage by himself. He saw the others roaming about the deck and tried to make up with them ; but they evinced no desire to become intimate with one who was confined in such a manner.

One bright Sunday morning, as we rode the calm waters near the Canary Islands, I induced the sailor to release his prisoner on the main deck with my own, to see how they would act towards each other. He did so, and in a moment the big ape came ambling along the deck towards Aaron and Elisheba, who were sitting on the top of a hatch, absorbed in gnawing some turkey bones.

As the stranger came near he slackened his pace and gazed earnestly at the others. Aaron ceased eating and stared at the visitor with a look of surprise, but Elisheba barely noticed him. He scanned Aaron from head to foot, and Aaron did the same with him. He advanced until his nose almost touched that of Aaron, and in this position the two remained for some seconds. Then the big one proceeded to salute Elisheba in the same manner, but she gave him little attention. She continued to gnaw the bone in her hand, and he had no reason to feel flattered at the impression he appeared to have made on her. Aaron watched him with deep concern, but without uttering a sound.

Turning again to Aaron, the big ape reached out for his turkey bone; but the hospitality of the little host was not equal to the demand. He drew back with a shrug of his shoulder, holding the bone closer to himself, and then he resumed eating. Then a steward gave a bone to the visitor. He climbed upon the hatch and took a seat on the right of Elisheba, Aaron being seated at her left. As soon as the big one had taken his seat, Aaron resigned his place and crowded himself in between them. The three sat for a few moments in this order, till the big one got up and deliberately walked around to the other side of Elisheba and sat down again beside her. Again Aaron forced himself in between them.

This act was repeated six or eight times; then Elisheba left the hatch and took a seat on a spar that lay on deck. The big ape immediately moved over and sat down near her; but by the time he was seated Aaron again got in between them, and as he did so he struck his rival a smart blow on the back. They sat in this manner for a minute or so. Then Aaron drew back his hand and struck again. He continued his blows, all the while increasing them in force and frequency; but the other did not resent them. His manner was one of dignified contempt, as if he regarded the inferior strength of his assailant unworthy of his own prowess. It would be absurd to suppose that he was constrained by any principle of honor, but his demeanor was patronizing and forbearing, like that of a considerate man towards a small boy.

One amusing feature of the affair was the half-serious and half-jocular manner of Aaron. When striking, he did

not turn his face to look at his rival, and the instant the blow was delivered he withdrew his hand as if to avoid being detected. He gave no sign of anger though he made no effort to conceal his jealousy; and the other seemed to be aware of the cause of his disquietude. The smirk of indifference on the little lover's face belied the state of mind that impelled his action, and it was patent to all who witnessed the tilt that Aaron was jealous of his guest. From time to time Elisheba would change her seat. Then a similar scene would ensue.

The whole affair was so comical and yet so real that one could not repress the laughter it evoked. It was the drama of "love's young dream" in real life, in which every man, at some period of his young career, has played each part the same as these two rivals played. Every detail of plot and line was the duplicate of a like incident in the experience of boyhood.

Elisheba did not seem to encourage the suit of this simian beau, but she did not rebuff him as a true and faithful spouse should do, and I never blamed Aaron for not liking it. She had no right to tolerate the attentions of a total stranger; but she was feminine, and, perhaps, endowed with all the vanity of her sex, and fond of adulation. However, my sympathies for the devoted little Aaron were too strong for me to permit him to be imposed upon by a rival twice as big and three times as strong as himself; so I took him and Elisheba away to the after deck, where they had a good time alone.

Elisheba was never very much devoted to me, but in the early part of her career she began to realize the fact that

I was her master and her friend. She had no gratitude in her nature, but she had sense enough to see that all her food and comfort were due to me, and as a matter of policy she became submissive; but she was never tractable. She was doubtless a plebeian among her own race and was not capable of being brought up to a high standard of culture. She could not be controlled by kindness alone, for she was by nature sordid and perverse. I was never cruel or severe in dealing with her, but it was necessary to be strict and firm. Her poor health, however, often caused me to indulge her in whims that otherwise would have brought her under a more rigid discipline. The patient conduct of Aaron appeared to be tempered by the same consideration.

CHAPTER XVII

Illness of Elisheba — Aaron's Care of Her — Her Death — Illness and Death of Aaron

AT the end of forty-two long days at sea we arrived at Liverpool. It was near the end of autumn. The weather was cold and foggy. Elisheba was failing in health, as I feared she would do, having come from the warm, humid climate along the equator, and, at the same time, having undergone a change of food.

On arriving at the end of our long and arduous voyage, I secured quarters for the apes and quickly had them stowed away in a warm, sunny cage. Elisheba began to recover from the fatigue and worry of the journey, and for a while was more cheerful than she had been at any time since I had known her. Her appetite returned, the symptoms of fever passed away, and she seemed benefited rather than injured by the voyage. Aaron was in the best of health and had shown no signs of any evil results from the trip.

On reaching the landing-stage in Liverpool, some friends who met us there expressed a desire to see the apes, and for that purpose I opened their cage in the waiting-room. When they beheld the throng of huge figures with white faces, long skirts, and big coats, they were almost frantic with fear. They had never before seen anything like it,

and they crouched back in the corner of the cage, clinging to each other and screaming in terror. When they saw me standing by them, they rushed to me, seized me by the legs, and climbed up to my arms. Finding they were safe here, they stared for a moment, as if amazed at the crowd; then Elisheba buried her face under my chin and refused to look at any one. They were both trembling with fright, and I could scarcely get them into their cage again; but after they were installed in their quarters with Dr. Cross, who was to have charge of them, they became reconciled to the sight of strangers in such costumes. In their own country they had never seen anything like it, for the natives, to whom they were accustomed, wear, as a rule, no clothing except a small piece of cloth tied round the waist, and the few white men they had seen were mostly dressed in white; but here was a great crowd of creatures in skirts and overcoats, and I have no doubt that to them it was a startling sight when seen for the first time.

During the first two weeks after arriving at Liverpool, Elisheba improved in health and temper, until she was not like the same creature; but about the end of that time she contracted a severe cold. A deep, dry cough, attended by pains in the chest and sides, together with a piping hoarseness, betrayed the nature of her disease and gave just cause for apprehension. During frequent paroxysms of coughing she pressed her hands upon her breast or side, to arrest the shock and thus lessen the pain it caused. When quiet, she sat holding her hands on her throat, her head bowed down and her eyes drooping or closed. Day by day the serpent of disease drew his deadly coils closer

ELISHEBA AND AARON

(From a Photograph.)

and closer about her wasting form; but she bore it with a patience worthy of a human being.

The sympathy and forbearance of Aaron were again called into action, and the demand was not in vain. Hour after hour he sat holding her locked in his arms, as he is seen in the portrait given herewith. He was not posing for a picture, nor was he aware how deeply his manners touched the human heart. Even the brawny men who work about the place paused to watch him in his tender offices to her, and his staid keeper was moved to pity by his kindness and his patience. For days she lingered on the verge of death. She became too feeble to sit up; but as she lay on her bed of straw, he sat by her side, resting his folded arms upon her and refusing to allow any one to touch her. His look of deep concern showed that he felt the gravity of her case in a degree that bordered on grief. He was grave and silent, as if he foresaw the sad end that was near at hand. My frequent visits were a source of comfort to him, and he evinced a pleasure in my coming that bespoke his confidence in me and his faith in my ability to relieve his suffering companion; but, alas! she was beyond the aid of human skill.

On the morning of her decease I found him sitting by her as usual. At my approach he quietly rose to his feet and advanced to the front of the cage. Opening the door, I put my arm in and caressed him. He looked into my face and then at the prostrate form of his mate. The last dim sparks of life were not yet gone out, as the slight motion of the breast betrayed; but the limbs were cold and limp. While I leaned over to examine more closely,

he crouched down by her side and watched with deep concern to see the result. I laid my hand upon her heart to ascertain if the last hope was gone; he looked at me, and then placed his own hand by the side of mine, and held it there as if he knew the purport of the act. Of course to him this had no real meaning, but it was an index to the desire which prompted it. He seemed to think that anything that I did would be good for her, and his purpose, doubtless, was to aid me. When I removed my hand, he removed his; when I returned mine, he did the same; and to the last he gave evidence of his faith in my friendship and good intentions. His ready approval of anything I did showed that he had a vague idea of my purpose.

At length the breast grew still, and the feeble beating of the heart ceased. The lips were parted, and the dim eyes were halfway closed; but he sat by as if she were asleep. The sturdy keeper came to remove the body from the cage; but Aaron clung to it and refused to allow him to touch it. I took the little mourner in my arms, but he watched the keeper jealously and did not want him to remove or disturb the body. It was laid on a bunch of straw in front of the cage, and he was returned to his place; but he clung to me so firmly that it was difficult to release his hold. He cried in a piteous tone and fretted and worried, as if he fully realized the worst. The body was then removed from view, but poor little Aaron was not consoled. How I pitied him! How I wished that he was again in his native land, where he might find friends of his own race!

After this he grew more attached to me than ever. When I went to visit him he was happy and cheerful in

my presence; but the keeper said that while I was away he was often gloomy and morose. As long as he could see me or hear my voice, he would fret and cry for me to come to him. When I had left him, he would scream as long as he had any hope of inducing me to return.

A few days after the death of Elisheba the keeper put a young monkey in the cage with him, for company. This gave him some relief from the monotony of his own society, but never quite filled the place of the lost one. With this little friend, however, he amused himself in many ways. He nursed it so zealously and hugged it so tightly that the poor little monkey was often glad to escape from him in order to have a rest. But the task of catching it again afforded him almost as much pleasure as he found in nursing it.

Thus for a few weeks he passed his time; then he was seized by a sudden cold, which in a few days developed into an acute type of pneumonia. I was in London at the time and was not aware of his sickness; but feeling anxious about him, I wrote to Dr. Cross, in whose care he was left, and received a note in reply, stating that Aaron was very ill and not expected to live. I prepared to go to visit him the next day, but just before I left the hotel I received a telegram stating that he was dead. The news contained in the letter was a greater shock to me than that in the telegram, for which in part the former had prepared me; but no one can imagine how deeply these evil tidings affected me. I could not bring myself to a full sense of the fact. I was unwilling to believe that I had been thus deprived of my devoted friend. I could not realize that fate could be so cruel to me; but, alas! it was true.

Not having been present during his short illness or at the time of his death, I cannot relate any of the scenes accompanying them ; but the kind old keeper who attended him declares that he never became reconciled to the death of Elisheba, and that his loneliness preyed upon him almost as much as the disease. When I looked upon his cold, lifeless body, I felt that I was indeed bereft of one of the dearest and most loyal pets that any mortal had ever known. His fidelity to me had been shown in a hundred ways, and his affections had never wavered. How could any one requite such integrity with anything unkind?

To those who possess the higher instincts of humanity it will not be thought absurd in me to confess that the conduct of these creatures awoke in me a feeling more exalted than a mere sense of kindness. It touched some chord of nature that yields a richer tone. But only those who have known such pets as I have known them can feel towards them as I have felt.

I have no desire to bias the calm judgment or bribe the sentiment of him who scorns the love of nature, by clothing these humble creatures in the garb of human dignity ; but to him who is not so imbued with self-conceit as to be blind to all evidence and deaf to all reason, it must appear that they are gifted with faculties and passions like to those of man ; differing in degree, but not in kind. Moved by such conviction, who could fail to pity that poor, lone captive in his iron cell, far from his native land, slowly dying? It may be a mere freak of sentiment that I regret not having been with him to soothe and comfort his last hours, but I do regret it deeply. He had the right to expect it of me, as a duty.

Poor little Aaron! In the brief span of half a year he had seen his own mother die at the hands of the cruel hunters; he had been seized and sold into captivity; he had seen the lingering torch of life go out of the frail body of Moses; he had watched the demon of death binding his cold shackles on Elisheba; and now he had himself passed through the deep shadows of that ordeal. What a sad and vast experience for one short year! He had shared with me the toils and the dangers of sea and land over many a weary mile. He seemed to feel that the death of his two friends had been a common loss to us; and if there is any one thing which more than another knits the web of sympathy about two alien hearts, it is the experience of a common grief.

Thus ended the career of my kulu-kamba friend, the last of my chimpanzee pets. In him were centered many cherished hopes; but they did not perish with him, for I shall some day find another one of his kind in whom I may realize all that I had hoped for in him. I cannot expect to find a specimen of superior qualities, for he was certainly one of the jolliest and one of the wisest of his race. However fine and intelligent his successor may be, he can never supplant either Moses or Aaron in my affections; for these two little heroes shared with me so many of the sad vicissitudes of time and fortune that I should be an ingrate to forget them or allow the deeds of others to dim the glory of their memory. I have all of them preserved, and when I look at them the past comes back to me, and I recall so vividly the scenes in which they played the leading *rôles;* it is like the panorama of their lives.

CHAPTER XVIII

Other Chimpanzees — The Village Pet — A Chimpanzee as Diner-Out — Notable Specimens in Captivity

AMONG the number of chimpanzees that I have seen are some whose actions are worthy of record; but as many of them were the repetitions of similar acts of other specimens which are elsewhere described, I shall omit mention of them and relate only such other acts as may tend to widen the circle of our knowledge, and more fully illustrate the mental range of this interesting tribe of apes.

In passing through the country of the Esyira tribe I came to a small village, where I halted for a rest. On entering the open space between two rows of bamboo huts, I saw a group of native children at the opposite end of the space, and among them was a fine big chimpanzee, sharing in their play. When they discovered the presence of a white man in the town, they left their sport and came to inspect me. The ape also came, and he showed as much interest in the matter as any one else did. I was seated in a native chair in front of the king's hut, and the people, as usual, stood around me at a respectful distance, looking on as if I had been some wild beast captured in the jungle.

The ape was aware that I was not a familiar kind of thing, and he appeared in doubt as to how he should act towards me. He sat down on the ground among the

people and stared at me in surprise, from time to time glancing at those around him as if to ascertain what they thought of me. As they became satisfied with looking they retired one by one from the scene, until most of them had

Native Village, Interior of Nyanza
(From a Photograph.)

gone ; but the ape remained. He changed his place a few times, but only to get a better view. The people were amused at his manner, but no one molested him.

At length I spoke to him in his own language, using the sound which they use for calling one another. He looked as if he knew what it meant, but made no reply. I repeated

the sound, and he rose up and stood on his feet, as if he intended to come to me. Again I uttered it, and he came a few feet closer, but shied to one side as if to flank my position and get behind me. He stopped again to look, and I repeated the word, in response to which he came up near my right side and began to examine my clothing. He plucked at my coat sleeve a few times, then at the leg of my trousers and at the top of my boot. He was getting rather familiar for a stranger; but I felt myself to blame for having given him the license to do so. For a while he continued his investigations, then he deliberately put his left hand on my right shoulder, his right foot on my knee, and climbed into my lap. He now began to examine my helmet, ears, nose, chin, and mouth. He became a little rough, and I tried to get him down out of my lap, but he was not disposed to go. Finally I told my boy — who acted as interpreter — to tell the native lads to come and take the ape away. This amused them very much, for they saw that I was bigger than the ape, and they thought I ought, therefore, to manage him myself. They complied, however; but his apeship declined to go until one of the men of the town interfered and compelled him to do so.

As he got down from my lap one of the boys bantered him to play. He accepted the challenge and ran after the lad until they reached the end of the open space between the houses, when the boy fell upon the ground, and the ape fell on him. They rolled and wallowed on the ground for a time. Then the ape released himself and ran away to the other end of the opening, the boy pursuing him.

When they reached the end of the street they again fell upon each other, and another scuffle ensued. It was plain to be seen that the boy could run much faster than the ape, but the ape did not try to elude him. The other children crowded around them or followed them, looking on, laughing and shouting in the greatest glee. First one boy and then another took his turn in the play, but the ape did not lose interest in me. He stopped from time to time to take another survey, but did not try again to get upon my lap.

After a long time at this sport the ape quit playing and sat down by the wall of a house, with his back against it; the children tried in vain to induce him to resume; but he firmly declined, and sat there like a tired athlete, picking his teeth with a bamboo splinter which he had pulled off the side of the house. His conduct was so much like that of the children with whom he was playing that one could not have distinguished him from them except by his physique. He enjoyed the game as much as they did and showed that he knew how to gain or use an advantage over his adversary. In a scuffle he was stronger and more active than the boys, but in the race they were the more fleet. He screamed and yelled with delight, and in every way appeared to enter into the spirit of the fun.

This ape was about five years old, and his history, as it was given to me, showed that he had been captured, when quite young, in the forest near that place and ever since that time had lived in the village. He had been the constant playmate of the children, ate with them, and slept in the same houses with them. He was perfectly tame and

harmless ; he knew by name every one in the village, and knew his own name.

The king's son — to whom he belonged — assured me that the ape could talk, and that he himself could understand what the animal said ; but he declined to gratify my request to hear it. However, he called the ape by name, telling him to come, and the ape obeyed. The man then gave him a long-necked gourd and told him to go to the spring and bring some water. The animal hesitated, but after the command had been two or three times repeated he reluctantly obeyed. After a few minutes he returned with the gourd about half filled with water. In carrying the vessel he held it by the neck, but this deprived him of the use of one hand. He waddled along on his feet, using the other hand, but now and then he set the gourd on the ground, still holding to it, and using it something after the manner of a short stick. On delivering the gourd of water to his master, he gave evidence of knowing that he had done a clever thing.

I expressed a desire to see him fill the gourd at the spring. The water was then emptied out, and the gourd was again given to him. On this occasion we followed him to the place where he got the water. On arriving he leaned over the spring and pressed the gourd into the water, but the mouth of it was turned down so that the water could not flow into it. As he lifted the gourd out it turned to one side, and a small quantity flowed into it. He repeated the act a number of times and seemed to know how it ought to be done, although he was very awkward in trying to do it. Whenever the water in the mouth

of the gourd bubbled, he dipped it back again and was evidently aware that it was not filled. Finally, raising the vessel, he turned and offered it to his master, who declined to relieve him of it. We turned to go back into the town, and the ape followed us with the gourd; but all the way along he continued to mutter a sound of complaint.

He was next sent into the edge of the forest to bring firewood. He had been gone only a few minutes when he returned with a small branch of dead wood which he had picked up from the ground. He was again sent, together with three or four children. When he returned on this occasion he had three sticks in his hand. The man explained to me that when the ape went alone he would never bring but one twig at a time, and this was sometimes not bigger than a lead pencil; but if the children went with him and brought wood, he would bring as much as he could grasp in one hand. He also told me that the animal would sit down on the ground and lay the sticks across one arm in the same manner as the children did, but he invariably dropped them when he rose up. Then he would seize what he could hold in one hand and bring it along. The man also said that, in carrying a single stick, the ape always used only the hand in which he held it; but that if he had three or four pieces he always curved his arm inwards, holding the wood against his side, and hobbled along with his feet and the other hand.

The next thing with which the man entertained me was sending the ape to call some one in the village. He first sent him to bring a certain one of the man's wives. She was several doors away from where we sat. The ape went

to one house, sat down at the door for a moment, looking inside, and then moved slowly along to the next, which he entered. Within a minute he appeared at the door, holding the cloth that the woman wore tied around her, and in this manner led her to his master. He was next sent to bring a certain boy. This he did in a similar manner, except that the boy had on no clothing of any kind, and the ape held him by the leg.

During all these feats the man talked to him, as far as I could tell, in the native language only; though he declared to me that some of the words that he had used were those of the ape's own speech. However, he said that many words that the ape knew were of the native speech, and that the ape had no such words in his language. One thing that especially impressed me was a sound which I have elsewhere described as meaning "good" or "satisfaction," which this man said was the word which these apes use to mean "mother." My own servant had told me the same thing, but I am still of the opinion that they are mistaken in the meaning of the sound, although it is almost exactly the same as the word for mother in the native speech. The difference being in the vowel element only, it is possible, I grant, that the word may have both meanings. A little later one of the women came to the door of a house and said, in the native language, that something was ready to eat; whereupon the children and the ape at once started. In the mean time she set in front of the house an earthen pot, containing boiled plantains, from which all the children and the ape alike helped themselves. In brief, the ape was a part of the family and was so regarded by

all in the town. I do not know to what extent those natives may have played upon my credulity, but so far as I could discern, their statements concerning the animal were verified.

I proposed to buy the ape, but the price asked was nearly twice that of a slave. I could have bought any child in the town at a smaller cost. I have never seen any other chimpanzee that I so much coveted. When standing in an upright position, he was quite four feet in height, strongly built and well proportioned. He was in a fine, healthy condition and in the very prime of his life. He was not handsome in the face, but his coat of hair was of good color and texture. He was of the common variety, but a fine specimen.

Mr. Otto Handmann, formerly the German consul at Gaboon, had a very fair specimen of this same species of chimpanzee. He was a rough, burly creature, but was well disposed and had in his face a look of wisdom that was almost comical. He had been for some months a captive in a native town, during which time he had become quite tame and docile. By nature he was not humorous, but he appeared to acquire a sense of fun as he grew older and became more familiar with the manners of men.

On my return from the interior I was invited by the consul to take breakfast with himself and a few friends ; but owing to a prior engagement, I was not able to be present. It was proposed by some one of the guests that my vacant seat at the table should be filled by the chimpanzee. He was brought into the room and permitted to occupy the seat. He behaved himself with becoming gravity and was

not abashed in the presence of so many guests. He was served with such things as were best suited to his liking, and his demeanor was such as to amuse all present. On the proposal of a toast all the guests beat with their hands upon the table, and in this the chimpanzee joined with apparent pleasure. After a few rounds of this kind, one of the guests occupying the seat next to the chimpanzee failed to respond with the usual beating ; the chimpanzee observed the fact, turned upon the guest, and began to claw, scream, and pound him on the back and arm until the gentleman proceeded to beat ; whereupon the ape resumed his place and joined in the applause. On this occasion he acquitted himself with credit ; but an hour later he had fallen into disgrace by drinking beer until he was actually drunk, when he awkwardly climbed off the chair, crawled under the table, and went to sleep.

One of the clerks in the employ of the consul had a fair specimen of this species. It was a female, perhaps two years younger than the one just described, but equally addicted to the habit of drinking beer. It is the custom among people on the coast to offer to a guest something to drink, and on these occasions this young lady ape always expected to partake with the others. If she was overlooked in pouring out the beer, she always set up a complaint until she got her glass. If it was not given to her, she would go from one to another, holding out her hand and begging for a drink. If she failed to secure it, she watched her opportunity, and while the guest was not looking would stealthily reach up, take his glass off the table, drink the contents, and return the glass to its place. She would

do this with each one in turn until she had taken the last glass; but if a glass was given to her at the same time that the others were served, she was content with it and made no attempt to steal that of another. In this act she evinced a skill and caution worthy of a confirmed thief; she would secrete herself under the table or behind a chair and watch her chance. She made no attempt to steal the glass while it was being watched, but the instant she discovered that she was not observed, or thought she was not, the theft was committed.

Her master frequently gave her a glass and a bottle of beer so that she might help herself. She could pour the beer with dexterity. She often spilt a portion of it and sometimes filled the glass to overflowing, but she always set the bottle right end up, lifted the glass with both hands, drained it, and refilled it as long as there was any in the bottle. She could also drink from the bottle and would resort to this method if no glass were given her. She knew an empty bottle from one that contained beer. I may remark here that I have known at least five or six chimpanzees that were fond of beer, and whenever they could get it would drink until they were drunk. I have never seen one, that I am aware of, that would drink spirits.

This ape was very much attached to her master, would follow him and cry after him like a child. She was affectionate to him; but she had been so much annoyed by strangers that her temper was spoiled, and she was irritable.

Arriving on the south side of Lake Izanga, I found a young chimpanzee at the house of a white trader. It was tied to a post in the yard, where it was annoyed by the

natives who came to the place to trade. On approaching it for the first time, I spoke to it in its own language, using the word for food. It recognized the sound at once and responded to it. As I came nearer, it advanced as far towards me as the string with which it was tied would allow. Standing erect and holding out its hands, it repeated the sound two or three times. I gave it some dried fish. This it ate with relish, and we at once became friends. Its master permitted me to release it on the condition that I should not allow it to escape. I untied the cord and took the little captive in my arms. It put its arms around my neck as if I had been the only friend it had on earth. It clung to me and would not consent for me to leave it. I could but pity the poor, neglected creature. There it was, tied in the hot sun, hungry, lonely, and exposed to the tortures of every heartless native that chose to tease it. When it was not in my arms it followed me around and would not leave me for a moment. Its master cared but little for it and left it to the charge of his boy, who, like all other natives, had no thought or concern for the comfort of any creature but himself. I tried to purchase it, but the price was too much, and after two days our friendship was broken forever. But I was glad to learn soon after this that another of the traders had secretly released it and let it escape into the forest. The man who did this told me that he did it as an act of mercy. I often recall this little prisoner to mind, and always feel a sense of gladness at knowing that he was set at liberty by a humane friend. Whatever may have been his fate in the forest, it could have been no

worse than to be confined, starved, and tormented, as he was while in captivity.

Another small specimen which I saw at Gaboon was not of much interest except from one fact, and that was it was broken out with an eruptive disease prevalent among the natives. This disease is called *craw-craw*, or *kra-kra*. It is said to originate from the water, either by external or internal use of that fluid. This animal was infected in the same way and on the same parts of the body as men are affected by the same disease, and is another instance of apes being subject to the same maladies as those of man. The specimen itself also exemplified the difference in intellect among these animals, for this one had in its face a look of mental weakness, and every act confirmed the fact. It was silent, inactive, and obtuse.

During my residence in the cage I saw fewer chimpanzees than gorillas; but from those I did see it was an easy matter to determine that they are much less shy and timid than the gorillas.

On one occasion I heard a chimpanzee in the bush not far away from the cage. I called him with the usual sound. He answered, but did not come to the cage. It is probable that he could see it and was afraid of it. I tried to induce Moses to call him, and he did once utter the sound; but he appeared to regret having made the attempt. I called again and the stranger answered, and from the manner in which Moses behaved it was evident that the call had been understood. Moses would not attempt the call again, but clung to my neck with his face buried under my chin. It was probably jealousy that

caused him to refuse, because he did not want the other to share my attentions. I gave the food sound, but I could not induce the visitor to come nearer. I failed to get a view of him so as to tell how large he was, but from his voice I judged that he must have been about full-grown. Whether he was quite alone or not I was not able to tell; but only the one voice could be heard.

Another time while I was sitting quite alone, a young chimpanzee, perhaps five or six years old, appeared at the edge of a small opening of the bush. He plucked a bud or leaf from a small plant. He raised it to his nose and smelt it. He picked three or four buds of different kinds, one or two of which he put in his mouth. He turned aside the dead leaves that were lying on the ground, as if he expected to find something under them. I spoke to him, using the call sound; he instantly turned his eyes towards me, but made no reply. I uttered the food sound, and he replied but did not move. He betrayed no sign of fear and but little of surprise. He surveyed the cage and myself. I repeated the sound two or three times. He refused to approach any nearer. He turned his head from side to side for a moment, as if in doubt which way to go; then he turned aside and disappeared in the bush. He did not run or start away as if in great fear, but by the sound of the shaking bushes it could be told that he increased his speed after he had once disappeared from view.

One day I had been for a stroll with Moses and the boy. As we returned to the cage we saw a chimpanzee about half grown; he was crossing a rugged little path about

thirty yards away from us. He paused for a moment to look at us, and we stopped. I tried to induce Moses to call out to him, but he declined to do so. As the stranger turned aside I called to him myself, but he neither stopped nor answered. This one appeared to be quite brown, but the boy assured me the hair was jet black, and that the light skin gave the appearance of brown color. To satisfy myself, I had Moses placed in the same attitude and position, and, looking at him from the same distance, I became convinced that the boy was right.

One morning, having started with Moses for a walk, we had gone only some forty yards away from the cage when he made a sound of warning. I instantly looked up and saw a large chimpanzee standing in the bush not more than twenty yards away. I paused to observe him. He stood for a moment, looking straight at us. I spoke to him, but he made no reply; he moved off in a line almost parallel to the little path we were in, and I returned towards the cage. He did not come any nearer to us, but kept his course almost parallel with ours. From time to time he turned his head to look, but gave no sign of attack. I called to him several times, but he made no answer. When I had reached a place in front of the cage I called again, and after the lapse of a few seconds he stopped. By this time he was concealed from view. He halted only for a moment, changed his course, and resumed his journey. This was the largest chimpanzee I saw in the forest. Once, while sitting in the cage, I heard the sound of something making its way through the bush not more than twenty yards away; presently a chimpanzee came into

view. As it crossed the path near by, I called three or four times, but it neither stopped nor answered. As well as I could tell, it appeared to be a female and quite grown.

I may take occasion to remark that, while the chimpanzee is mostly found in large family groups, — as I have reason to believe, from native accounts of them and from what has been told me by white men, — I have never been able to see a family of them together. Each of these that I have mentioned, so far as I could tell, was quite alone. Whether or not the others were scattered through the forest in like manner, hunting for food, and all came together after this, I cannot say.

Another thing worthy of mention is the fact that both these apes, the chimpanzee and the gorilla, live in the same forest, and twice on the same day I have seen both kinds. This is contrary to the common idea that they do not inhabit the same jungle. It appears that where there is a great number of the one kind there are but a few of the other. The natives say that in combat between the chimpanzee and the gorilla the former is always victor, and on this account the gorilla fears the chimpanzee. I believe this to be true, because the chimpanzee, although not so strong as the gorilla, is more active and more intelligent.

The chimpanzee will not approach or attack man if he can avoid him, but he does not shrink from him as the gorilla does. One instance that will illustrate this phase of his character I shall relate. On one occasion recently, while I was on the coast, a native boy started across a small plain near the trading station. With him was a dog

that belonged to the white trader of the place. The dog was in advance of the boy, and as the latter emerged from a small clump of the bush he heard the dog bark in a playful manner, and discovered him not more than thirty yards away, prancing, jumping, and barking in a jolly way with a chimpanzee which appeared to be five or six years old. The ape was standing in the path along which the boy was proceeding. He was slapping at the dog with his hands and did not seem to relish the sport; yet he was not resenting it in anger. The dog thought the ape was playing with him, and he was taking the whole thing in fun. The boy looked at them for a few moments and retreated. As soon as he disappeared the dog desisted and followed him to the house. The boy was afraid of the ape and made no attempt to capture him. The ape was taken by surprise by the dog and the boy, and thus had no time to escape. He did not strike to harm the dog, but only to ward him off. The dog made no attempt to bite the ape, but would jump up against him and knock him out of balance, and this annoyed him. The ape didn't seem to understand just what the dog meant.

I shall not describe those apes that have been kept in captivity and are well known; but I will mention some of them. The largest specimen of the chimpanzee that I have ever seen was Chico, who belonged to Mr. James A. Bailey of New York. He was as large perhaps as these apes ever become, although he was less than ten years old when he died.

Perhaps the most valuable specimen for scientific use that has ever been in captivity is Johanna, who belongs

to the same gentleman. The history that is given of her, however, is hardly to be taken in full faith. Her age cannot be determined with certainty, but it is said that she is about thirteen years old. I have reason to doubt that, although I cannot positively deny it. Whatever may be her exact age, it is certain that she has now reached a complete adult state. She has grown to be quite as large as Chico was at the time of his death. She is not of amiable temper, but is much less vicious than he was. She has some of the marks of a kulu-kamba.

In order to justify my doubts upon the subject of Johanna's age, I may state that Chico was hardly ten years of age when he died, but he had reached the adult period; and as males of any genus of the primates do not reach that state sooner than the females, it is not probable, since he was mature at ten, that she was not so until twelve. In the next place, her captors claim to have seen her within a few hours after her birth, and state that they watched her and her mother from time to time until she was one year old. Then they killed the mother and captured the babe. The claim is absurd. These apes are nomadic in habit and are rarely ever seen twice in the same place. They claim that she was born on January 19, but, from what I know of these apes, I conclude that is not their season of bearing. I doubt if any of them *were* ever born during that month. Again, it is claimed that she was captured by Portuguese explorers in the Congo, but the Portuguese do not possess along that river any territory in which these apes are ever found. They claim the territory around Kabinda, which would indicate that she

came from the Loango valley instead of the Congo; but the cupidity of the average Portuguese would never allow anything to go at liberty for a year if it could be sold before that time.

Johanna is accredited with a great deal of intelligence, but I do not regard her as being above the average of her race. Since the death of her companion, Chico, she has received the sole attention of her keeper, and since that time has been taught a few things which are neither marvelous nor difficult. In point of intellect she cannot be regarded as an extraordinary specimen of her tribe. I do not mean to detract from her reputation, but I have failed to discover in her any high order of mental qualities.

The reason why Johanna may be regarded as the most valuable specimen for study is the fact that she is the only female of her race that has ever, in captivity, reached the state of puberty. She has done so, and this fact enables us to determine certain things which have never heretofore been known. This affords the zoölogists an opportunity for the study of her sexual developments which may not again present itself in many years to come. From this important point of view she presents the student with many new problems in that branch of science. I have elsewhere stated my opinion that the female chimpanzee reaches the age of puberty at seven to nine years, and I have many reasons which I will not here recount that cause me to adhere to that belief. But the uncertainty of the age of this ape does not destroy her value as a subject of scientific study.

The most sagacious specimen of the race that I have been brought in contact with is Consul II, who is now an inmate of the Bellevue Garden in Manchester, England. He has not been educated to perform mere tricks to gratify the visitor, in the way that animals are usually trained, but most of the feats that he performs are prompted by his own desire and for his own pleasure. There is a vast difference in the motives that prompt animals in the execution of these feats. I have elsewhere mentioned the fact that animals that are caused to act from fear do so mechanically, and the acts are not a true index to their intellect. While Consul and a few other apes that I have seen do many things by imitation, they do not do them by coercion. They seem to understand the purpose and foresee the result, and these impel them to act.

Some of the feats performed by this ape I have never seen attempted by any other. One accomplishment is the riding of a tricycle. He knows the machine by the name of "bike," although it is not really a bicycle. He can adjust it and mount it with the skill of an acrobat. The ease and grace with which he rides are sufficient to provoke the envy of any boy in England. He propels it with great skill and steers it with the accuracy of an expert. He guides it around angles and obstacles with absolute precision. He is allowed to go at liberty a great deal of his time; and this is the proper way to treat these apes in captivity. He rides the wheel for his own diversion. He does not do it to gratify strangers or to "show off."

Another accomplishment which Consul has is that of smoking a pipe, a cigar, or a cigarette. This may not be

CONSUL II RIDING A TRICYCLE

(From a Photograph.)

commended from a moral standpoint, but it appears to afford him quite as much pleasure as it does the average boy when he first acquires the habit. He has also formed the habit of spitting as he smokes, — but he has the good manners not to spit on the floor. When Consul has his pipe lighted he usually sits on the floor to enjoy a smoke, and he spreads down before him a sheet of paper to spit on. When he has finished smoking he rolls up the paper and throws it into some corner, out of the way. When playing about the grounds he often finds a cigar stub. He knows what it is, picks it up, puts it into his mouth, and at once goes to his keeper for a light. He will not attempt to light his pipe or cigar, because he is afraid of burning his fingers; but he will light a match and hand it to his keeper to hold while lighting the pipe. He sometimes takes a piece of paper, lights it in the fire, and hands it to some one else to light his pipe for him. He is afraid of the fire and will not hold the paper while it is burning. If any one hesitates to take it, he throws it at him and then gets out of the way. He is not fond of cigarettes, because he gets the tobacco in his mouth, and he does not like the taste of it.

When Consul is furnished with a piece of chalk he begins to draw some huge figure on the wall or the floor. He never attempts to make a small design with chalk, but if given a pencil and paper, he executes some peculiar figure of smaller design. Those made with the chalk or the pencil are usually round or oval in shape, but if given a pen and ink, he at once begins to make a series of small figures containing many acute angles. Whether these

results are from design or accident I cannot say, but he appears to have a well-defined idea as to the use of the instrument. Whether he can distinguish between writing and drawing I am unable to say.

The only abstract thing that his keeper has tried to teach him is to select from the letters of the alphabet. He has learned to distinguish the first three. These are made upon the faces of cubical blocks of wood; each block contains one letter on each of its faces. He selects with very few mistakes the letter asked for, and errors appear to result from indifference rather than from ignorance.

Consul is very fond of play, and he makes friends with some strangers on sight, but to others he takes an aversion without any apparent cause; and, while he is not disposed to be vicious when not annoyed, he resents with anger the approaches of certain persons. He is the only ape I have seen that can use a knife and fork with very much skill; but he cuts up his food with almost as much ease as a boy of the same age would do, and he uses his fork in eating. He has been taught to do this, until he rarely uses his fingers in the act. He is fond of coffee and beer, but does not care for spirits.

There is nothing that so much delights Consul as to get into the large cage of monkeys and baboons kept in the garden. Most of them are afraid of him. But one large Guinea baboon is not so, and on every occasion he shows his dislike for the ape. The latter takes many chances in teasing him, but always manages to evade his attack. He displays much skill and a great degree of caution in playing these pranks upon the baboon when at close range. Upon

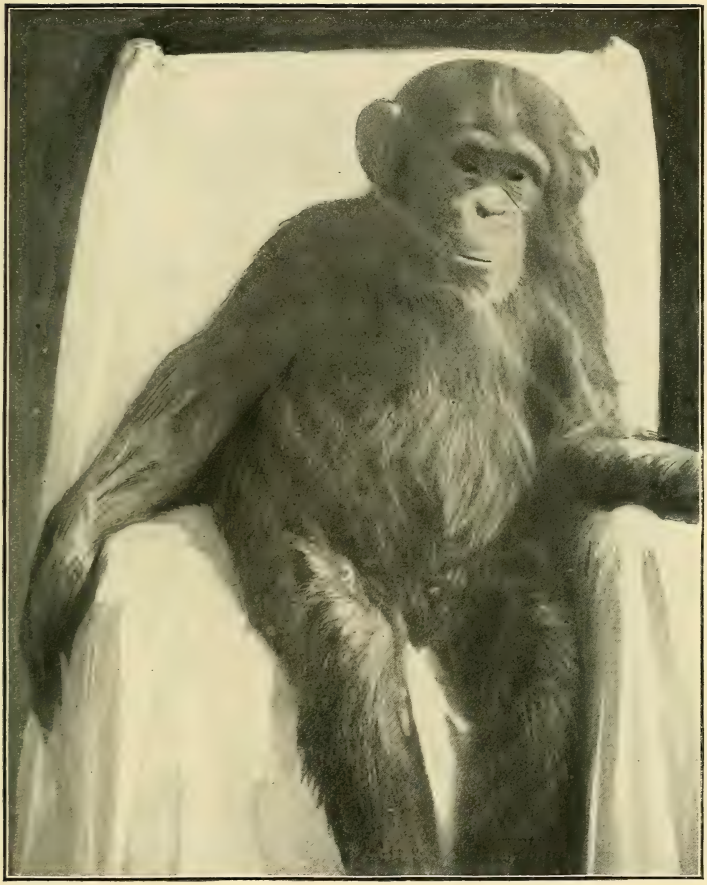
the approach of the ape the other animals in the cage all seek some refuge, and he finds great diversion in stealing up to their place of concealment to frighten them. Consul is very strong and can lift objects of surprising weight. It is awkward for him to stand in an upright position, but he does so with more ease than any other chimpanzee that I have ever seen. If any one will take hold of his hand, he will stroll for a long time and without apparent fatigue.

Owing to the sudden changes of temperature in that part of England where he is kept, he is provided with a coat and is often required to wear it when going out of doors. He does not like to be hampered with such a garment, and if for a moment he is not watched, he removes it and sometimes hides it to keep from wearing it. He is also provided with trousers; these he dislikes more if possible than his coat, but, above all other articles of wearing apparel, he dislikes shoes. His keeper often puts them on him, but whenever he gets out of sight he unties and removes them. He cannot tie the laces, but can untie them in an instant. He does not evince so much aversion to a hat or a cap and will sometimes put one on without being told; but he has a perfect mania for a silk hat and, if allowed to do so, he would demolish that of every stranger who comes to the garden. He has a decided vein of humor and a love of approbation. When he does anything that is funny or clever, he is perfectly aware of the fact; and when by any act he evokes a laugh from any one, he is happy and recognizes the approval by a broad chimpanzee grin.

In the corner of the monkey house is a room set apart for the keeper, and in this room supplies of food for the inmates are kept. In a small cupboard in one corner is kept a supply of bananas and other fruits. Consul knows this and has tried many times to burglarize it. On one occasion he secured a large screw-driver and attempted to prise open the door. He found the resistance to be greatest at the place where the door locked, and at this point he forced the instrument in the crevice and broke off a piece of the wood, about an inch wide, from the edge of the door. At this juncture he was discovered and reproved for his conduct; but he never fails to stick his fingers in this crack and try to open the door. He has not been able to unlock it when the key is given him, although he knows the use of the key and has often tried it; but his keeper has never imparted the secret to him, and his method of using the key has been to prise with it or pull it, instead of turning it after putting it in the keyhole.

The young keeper, Mr. Webb, deserves great credit for his untiring attention to this valuable young ape, and the results of his zeal are worthy of the recognition of every man who is interested in the study of animals.

Another specimen that may be regarded as an intermediate type was recently kept in Bellevue Gardens at Manchester. He was playful and full of mischief. He had been taught to use a stick or broom in fight, and with such a weapon in his hand he would run all over the building, hunting some one to attack. He did not appear to be serious in his assault, but treated it as fun. It is a bad thing to teach to apes, because they grow pugnacious as



MR. CROWLEY, LATE OF THE NEW YORK ZOÖLOGICAL GARDEN

(Taken from Life.)

they grow older, and all animals kept closely confined acquire a bad temper.

In an adjoining cage was kept a young orang, and the two ate at the same table. The chimpanzee appeared to entertain a species of contempt for the orang. The keeper had taught him to pass the bread to his neighbor, but he obeyed with such reluctance that his manner betrayed more disgust than kindness. A few small pieces of bread were placed on a tin plate, and the kulu was required to lift the plate in his hand and offer it to the orang before he himself was allowed to eat. He would lift the plate a few inches above the table and hold it before the orang's face; when the latter had taken a piece of the bread, the chimpanzee withdrew the plate, held it for a moment, and dropped it. Meanwhile he kept his eyes fixed on the orang. The manner in which he dropped the plate looked as if he did so in contempt. When the meal was finished, the kulu would drink his milk from a cup, wipe his mouth with the serviette, and then get down from the table. The orang would slowly climb down and go back to his cage. We shall not describe the details of their home life, but they were two jolly young bachelors, one of which was as stupid as the other was bright.

The specimens that were kept in the Gardens in New York were very fine. One of them was mentally equal to any other specimen hitherto in captivity. There were two kept in the Cincinnati Gardens which were also very fine. So far as I am aware, there have never been but nine of these apes brought to America; but six of these lived longer, and four of them grew to be larger, than any other

specimens of this race have ever done in captivity. For some reason they never survive long in England or other parts of Europe. This is probably due to some condition of the atmosphere. It cannot be from a difference of treatment.

I have seen a large number of chimpanzees; most of them were in captivity; yet I have seen enough of them in a wild state to gain some idea of their habits and manner. Those described will be sufficient to show the mental character of the genus.

CHAPTER XIX

Other Kulu-Kambas — A Knotty Problem — Instinct or Reason — Various Types

WHETHER the kulu-kamba is a distinct species of ape, or only a well-marked variety of the chimpanzee, he is by far the finest representative of his genus. Among those that I have seen are some very good specimens, and the clever things that I have witnessed in them are sufficient to stamp them as the highest type of all apes.

On board a small river steamer that plies the Ogowé was a young female kulu that belonged to the captain. Her face was not by any means handsome, and her complexion was darker than that of any other kulu I have ever seen. It was almost a coffee color. There were two or three spots yet darker in shade, but not well defined in outline. The dark spots looked as if they had been artificially put on the face. The color was not solid, but looked as if dry burnt umber had been rubbed or sprinkled over a surface of lighter brown. Although she was young (perhaps not more than two years old), her face looked almost like that of a woman of forty. Her short, flat nose, big, flexible lips, protruding jaws, and prominent arches over the eyes, with a low, receding forehead, conspired to make her look like a certain type of human

being one frequently sees. This gave her what is known as a dish-face, or concave profile.

She had a habit of compressing her nose by contracting the muscles of the face, curling her lips as if in scorn and at the same time glancing at those around her as if to express the most profound contempt. Whatever may have been the sentiment in her mind, her face was a picture of disdain, and the circumstances under which she made use of these grimaces certainly pointed to the fact that she felt just as she looked. At other times her visage would be covered with a perfect smile. It was something more than a grin, and the fact that it was used only at a time when she was pleased or diverted showed that the emotion which gave rise to it was perfectly in keeping with the face itself. In repose her face was neither pretty nor ugly. It did not strongly depict a high mental status, nor yet portray the instincts of a brute; but her countenance was a safe index to her mind. This is true of the chimpanzee more, perhaps, than of any other ape. The gorilla doubtless feels the sense of pleasure, but his face does not yield to the emotion, while the opposite passions are expressed with great intensity, and with the common chimpanzee it is the same way, but not to the same extent.

The kulu in question was more a coquette than a shrew. She plainly showed that she was fond of flattery; not perhaps in the same sense that a human being is, but she was certainly conscious of approbation and fond of applause. When she accomplished anything difficult, she seemed aware of it; and when she succeeded in doing a thing which she ought not to do, she never failed to express

herself in the manner described above. She always appeared to be perfectly conscious of being observed by others, but she was defiant and composed. There is nothing known in the catalogue of mischief that she was not ready to tackle at any moment and take her chances on the result. From the stokehole to the funnel, from the jack-staff to the rudder, she explored that boat. To keep her out of mischief, she was tied on the saloon deck with a long line; but no one aboard the vessel was able to tie a knot in the line which she could not untie with dexterity and ease. Her master, who was a sailor and an expert in the art of tying knots, exhausted his efforts in trying to make one that would defy her skill.

On one occasion I was aboard the little steamer when the culprit was brought up from the main deck, where she had been in some mischief, and was tied to one of the rails along the side of the boat. The question of tying her was discussed, and at length a new plan was devised. In the act of untying a knot she always began with the part of the knot that was nearest to her. It was now agreed to tie the line around one of the rails on the side of the deck, about halfway between the two stanchions that supported it, then to carry the loose ends of the line to the stanchion, and make them fast in the angle of the stanchion and the rail. As soon as she was left alone she began to examine the knots. She made no attempt at first to untie them, but she felt them, as if to see how firmly they were made. She then climbed upon the iron rail around which the middle of the line was tied and slackened the knot. She pulled first at one strand and then at the other; but one

end was tied to the stanchion and the other to her neck, and she could find no loose end to draw through. First one way and then the other she drew this noose. She saw that in some way it was connected with the stanchion. She drew the noose along the rail until it was near the post; she climbed down upon the deck, then around the post and back again; she climbed up over the rails and down on the outside, and again carefully examined the knot; she climbed back, then through between the rails and back, then under the rails and back, but she could find no way to get this first knot out of the line. For a moment she sat down on the deck and viewed the situation with evident concern. She slowly rose to her feet and again examined the knot; she moved the noose back to its place in the middle of the rail, climbed up by it, and again drew it out as far as the strands would allow. Again she closed it; she took one strand in her hand and traced it from the loop to the stanchion; then she took the other end in the same manner and traced it from the loop to her neck. She looked at the loop and then slowly drew it out as far as it would come. She sat for a while holding it in one hand, and with the other moved each strand of the knot. She was in a deep study and did not even deign a glance at those who were watching her. At length she took the loop in both hands, deliberately put it over her head and crawled through it. The line thus released dropped to the deck; she quickly descended, took hold of it near her neck, and found that it was untied; she gathered it up as she advanced towards the other end that was tied to the post, and at once began to loosen the knots about it. In

a minute more the last knot was released. She then gathered the whole line into a bundle, looked at those around her with that look of contempt which we have described, and departed at once in search of other mischief. Her air of triumph and content was enough to convince any one of her opinion of what she had done.

If this feat was the result of instinct, the lexicons must give another definition for that word. There were six white men who witnessed the act, and the verdict of all of them was that she had solved a problem which few children of her own age could have done. Every movement was controlled by reason. The tracing out of cause and effect was too evident for any one to doubt. Almost any animal can be taught to perform certain feats, but that does not show innate capacity. The only true measure of the faculty of reason is to reduce the actor to his own resources and see how he will handle himself under some new condition; otherwise the act will be, at least in part, mechanical or imitative. In all my efforts to study the mental caliber of animals I have confined them strictly to their own judgment, and left them to work out the problem alone. By this means only can we estimate to what extent they apply the faculty of reason. No one doubts that all animals have minds which are receptive in some degree. But it has often been said that they are devoid of reason and controlled alone by some vague attribute called instinct. Such is not the case. It is the same faculty of the mind that men employ to solve the problems that arise in every sphere of life, the one which sages and philosophers have used in every phase of science, differing only in degree.

This kulu-kamba knew the use of a corkscrew. This knowledge she had acquired from seeing it applied by men. While she could not use it herself with success, she often tried, and she never applied it to a wrong purpose. She would take the deck broom and scrub the deck, unless there were water on it ; in that event she always left the job. She did not seem to know the purpose of sweeping the deck, and never swept the dirt before the broom. The action was doubtless imitative. She only grasped the idea that a broom was used to scrub the deck, but she failed to observe the effect produced. However, it cannot be said with certainty to what extent she was aware of the effect, but it is inferred from the fact that she did not try to remove the dirt. She knew what coal was intended for, and she often climbed into the bunker and threw it down by the furnace door. The furnace door and steam gauge were two things that escaped her busy fingers. I do not know how she learned the danger of them, but she never touched them. She had to be watched to keep her from seizing the machinery. For this she seemed to have a strong desire, but did not know the danger she might incur.

I was aboard a ship when a trader brought off from the beach a young kulu to be sent to England. The little captive sat upright on the deck and seemed aware that he was being sent away. At any rate, his face wore a look of deep concern, as if he had no friend to whom he could appeal. On approaching him I spoke to him, using his own word for food. He looked up and promptly answered it. He looked as if in doubt as to whether I was a big ape

or something else. I repeated the sound, and he repeated the answer and came towards me. As he approached me I again gave the sound. He came up and sat by my feet for a moment, looking into my face. I uttered the sound again, when he took hold of my leg and began to climb up as if it had been a tree. He climbed up to my neck and began to play with my lips, nose, and ears. We at once became friends, and I tried to buy him; but the price asked was more than I desired to pay. I regretted to part with him, but he was taken back to the beach, and I never saw him again.

On another occasion one was brought aboard, and after speaking to him I gave him an orange; he began to eat it and at the same time caught hold of the leg of my trousers as if he did not wish me to leave him. I petted and caressed him for a moment and turned away, but he held on to me. He waddled about over the deck, holding on to my clothes, and would not release me. He was afraid of his master and the native boy who had him in charge. He was a timid creature, but was quite intelligent, and I felt sorry for him because he seemed to realize his situation.

On the same voyage I saw one in the hands of a German trader. It was a young male, about one year old. He promptly answered the food sound. Then I called him to come to me; but this sound he neither answered nor complied with. He looked at me as if to ask where I had learned his language. I repeated the sound several times, but elicited no answer. I have elsewhere called attention to the fact that these apes do not answer the call when they can see the one who makes it, and they do not always

comply with it. In this respect they behave very much like young children, and it may be remarked that one difficulty in all apes is to secure fixed attention. This is exactly the same with young children. Even when they clearly understand, sometimes they betray no sign of having heard. At other times they show that they both hear and understand, but do not comply.

Another specimen that was brought aboard a ship when I was present was a young male, something less than two years old. He was sullen and morose. He did not resent my approaches, but he did not encourage them. I first spoke to him with the food sound, but he gave no heed. I retired a little distance from him and called him, but he paid no attention. I then used the sound of warning; he raised his head and looked in the direction from which the sound came. I repeated it, and he looked at me for a moment and turned his head away. I repeated it again. He looked at me, then looked around as if to see what it meant, and again resumed his attitude of repose.

On my last voyage to the coast I saw a very good specimen in the Congo. It was a female, a little more than two years old. She was also of a dark complexion, but quite intelligent. She had been captured north of there, and within the limits elsewhere described. At the time I saw her she was ill and under treatment; but her master, the British consul, told me that when she was well she was bright and sociable. I made no attempt to talk with her, except some time after having left her I gave the call sound. She answered by looking around the corner of the house. I do not know whether she would have come or

not, as she was tied and could not have come had she desired to do so.

I have seen a few specimens of this ape, and most of them appear to be of a somewhat higher order than the ordinary chimpanzee ; but there is among them a wide range of intelligence. It would be a risk to say whether the lowest specimen of kulu is higher or lower than the highest specimen of the common chimpanzee, but taken as a whole they are much superior. I shall not describe the specimens which have been known in captivity, since most of them have been amply described by others.

If proper conditions were afforded to keep a pair of kulus in training for some years, it is difficult to say what they might not be taught. They are not only apt in learning what they are taught, but they are well disposed and can apply their accomplishment to some useful end. We cannot say to what extent they may be able to apply what they learn from man, because the necessity of using such knowledge is removed by the attention given to them.

CHAPTER XX

The Gorilla — His Habitat — Skeleton — Skull — Color — Structural Peculiarities

IN the order of nature the gorilla occupies the second place below man. His habitat is the lowlands of tropical West Africa, and it is confined to very narrow limits. The vague lines which bound his realm cannot be defined with absolute precision, but those generally given in books that treat of him are not correct. If he ever occupied any part of the coast north of the equator, he has long since become extinct in that part; but there is nothing to show that he ever did exist there. So far as I have been able to trace the lines that define the extent of his native haunts, they appear to confine him to the low delta country lying between the equator and the Loango valley along the coast, and reaching eastward to the interior — an average distance of less than one hundred miles. The eastern boundary is very irregular. The extreme limit on the north side is about the Gaboon River, eastward to the foothills of the Crystal Mountains; thence southward to the Ogowé River to the vicinity of the mouth of the Nguni; thence up that river twenty or thirty miles; thence by a zigzag line along the western base of the dividing lands between the Congo basin and the Atlantic watershed, to the head-waters of the Chi Loango River, and with that

valley to the coast. Beyond these lines I have found no reliable trace of him, and along this boundary only now and then is he found, except along the coast.

I have seen two adult skulls and two infant skulls of the gorilla that were brought by Mr. Wm. S. Cherry from the Kisanga valley, which lies on the north side of the middle Congo, into which the Kisanga River flows. The skulls are the only evidence I have found of this ape existing so far eastward; but they were said to have come from that part of the valley lying directly under the equator. Mr. Cherry himself did not collect them. He secured them from natives, and he does not claim to have seen any of those apes alive.

There appear to be three centers of gorilla population. The first is in the basin of Izanga Lake; the second is on the south side of the basin of Lake Nkami; and the third is in the basin of the lake east of Sette Kama and west of the Nkami River. The gorilla is rarely, if ever, found in high or hilly districts. He appears to be restricted to the hummock lands, which are elevated only a few feet above tide-level. This is all the more singular from the fact that the ape appears to have a morbid dislike for water, and it is doubtful whether or not he can swim. It is true that he has one peculiar characteristic that belongs to aquatic animals. He has a kind of web between the digits; but its purpose cannot be to aid in swimming. I have been told that the gorilla can swim, and the statement may be true; but I have never observed anything in his habits to confirm this, and I have noted many facts that controvert it.

I know of no valid reason why he should be confined to the limits mentioned, unless it be on account of climatic conditions which are peculiar to this district. South of it the climate along the coast is much cooler. The country east of it is hilly and comparatively barren. North of the equator is a land of almost perpetual rain. Within this district dry and rainy seasons are more equally divided and more uniform in temperature.

The gorilla appears to be an indigenous product which does not bear transplanting. He thrives only in a low, hot, and humid region, infested by malaria, miasma, and fevers. It is doubtful if he can long survive in a pure atmosphere. The only specimen that I have ever heard of north of the equator was one on the south side of the Komo River, which is the north branch of the Gaboon. The point at which I heard of his being was within a few miles of the equator. I also heard of five having been seen a few miles southwest from Njole, which is located on the equator on the north bank of the Ogowé, a little way east of the Nguni. They were said to be the first and only ones ever seen in that region within the memory of man. As to their being found between Gaboon and Cameroon, I find no trace along the coast of one ever having been seen in that part.

Certain writers have mentioned the fact that, in 1851 and 1852, gorillas came in great numbers from the interior to the coast. The fact is that then the gorilla was practically unknown to science. He had been reported by Ford, Savage, and others, but prior to that time there are no data to show whether or not they were more numerous

in the years mentioned. There had never been a specimen brought to civilization. It was about that time that Dr. Ford sent a skeleton to America, and one had been previously sent to England. Some years earlier Dr. Savage had announced the existence of such a creature and had sent sketches of a skull, but it was more than ten years after the period in question that Paul du Chaillu brought out the first skins of gorillas and gave detailed accounts of their character, habits, and geographical distribution. From these facts it is not rash to conclude that the migrations of 1851 and 1852 are mere matters of fancy.

Gorillas are found in the Ogowé delta, about one degree south latitude; but not one has ever been known to come from the Crystal Mountains. At the time above mentioned neither traders nor missionaries had ascended the Gaboon River above Parrot Island (which is less than twenty miles from the mouth), except to make a flying trip by canoe. Nothing was known of those parts except what was learned from the natives, and that was very little. During my first voyage I went up the river as far as Nenge Nenge, about seventy-five miles from the coast. At that place I spent two days with a white trader, who had been stationed there for a year. I was assured by him that there were no gorillas in that section. The natives report that they have been found in the lowlands south of there, in the direction of the Ogowé basin; but their reports are conflicting, and none of them, so far as I could learn, claims that they are found north of there, nor in the mountains eastward. I admit that they may have been found in, and may yet inhabit, the strip of land between the Gaboon and

the Ogowé; but I repeat that there is no tangible proof that they were ever found north of the Gaboon. With due respect to Sir Richard Owen and other writers who have never been in that country, I insist that they are mistaken. It is true that one of the tribes living north of the Gaboon has a name for this animal; but it does not follow that the ape lives in that country. The Orungu tribe has a name for lion, but there is not such a beast within two hundred miles of their country. Not one of that tribe ever saw a lion.

A number of specimens of gorillas have been secured at Gaboon, but they have been brought there from far away. It is the chief town of the colony, and there are more white men there than elsewhere to buy them. It is not possible for a stranger to ascertain what part of the country a specimen is brought from. The native hunter will not tell the truth, lest some one else should find the game and thus deprive him of its capture and sale. I saw a specimen at Cameroon, and was told it had been captured in that valley, fifty miles from the coast; but I hunted up its history and found with absolute certainty that it was captured near Mayumba, two hundred miles south of Gaboon.

Even with the greatest care in hunting up the history of a specimen, one may fail, and often does fail, in tracing it to its true source; but every one, so far, that I have followed up has been brought from somewhere within the limits I have laid down. Contrary to the statement of some authorities that these apes "have never been seen on the coast since 1852," I assert that by far the greatest number of them are found near the coast. I do not mean to say

that they sit on the sand along the beach, or bathe in the surf, but they live in the jungle of the low coast belt. Along the lower Congo the gorilla is known only by name, and scores of the natives do not know even that. The nearest point to that river that I have been able to locate the gorilla as a native is in the territory about sixty or seventy miles northwest of Stanley Pool.

I am much indebted to the late Carl Steckelman, who was an old resident of the coast, a good explorer, a careful observer, and an extensive traveler. He was drowned at Mayumba in my presence in October, 1895. I knew him well and secured from him much information concerning the gorilla. On a map he traced out for me what he believed to be the south and southeast limits of the gorilla's habitat. Not thirty minutes before the accident in which he lost his life I had closed arrangements with him to make an expedition from Mayumba to the Congo, near Stanley Pool, by one route and return by another, but his death prevented the fulfillment of this plan.

Dr. Wilson, who was the first missionary at Gaboon, located there in 1842. About six years after that time he wrote a lexicon of the native language. In this the name of the gorilla does not appear at all. If the ape had been so very common, it is not probable that his name would have been omitted from this lexicon. Eight years later Dr. Walker, in a revision of the book, gave the definition, "a monkey larger than a man." But he had never seen a specimen of the ape, except the skulls and a skeleton which had been brought from other parts. It is true that at Gaboon Dr. Savage first learned about the gorilla and

there secured a skull. From this he made drawings, on which account his name was attached to that of the animal in natural history. It was still a few years later that Dr. Ford sent the first skeleton to America, and Captain Harris sent the first to England. The former skeleton is in the Museum of Zoölogy at Philadelphia. Both of these specimens may have come from any place a hundred miles away from Gaboon.

It is possible that at this early date the gorilla may have occupied the peninsula south of the Gaboon River in greater numbers than he has since done, because up to that time there had been no demand for specimens. If this was true at that time, it is not so now; and if he is not extinct in that part, he is so rare as to make it doubtful whether or not he is found there at all as a native. In four journeys along the Ogowé River and the lakes of that valley I made careful inquiries at many of the towns, and the natives always assured me that the gorillas lived on the south side of that river. I spent five days at the village of Moiro, which is located on the north side of the river and about fifty miles from the coast. There I was told by the native woodsmen that no gorillas lived on the north side of the river, but that there were plenty of them along the lakes south of the river. They said that in the forest back of their town were plenty of chimpanzees, and that they were sometimes mistaken for gorillas, but there were absolutely none of the latter in that part.

In view of these and countless other facts I deem it safe to say that few or no gorillas can be found at any point north of the Ogowé River; and I doubt if the specimen heard of on the Komo was a genuine gorilla. The natives

sometimes claim to have something of the kind for sale, in order to get a bonus from some trader, when in truth they may not have anything of the kind. The only point north of the Ogowé at which I have had any reason to believe a gorilla was ever found was in the neighborhood of a small lake called Inenga. This lake is nearly due west from the mouth of the Nguni River and something more than a hundred miles from the coast. Certain reports along that part appeared to have a flavor of truth; but there was no evidence except the statement of the natives.

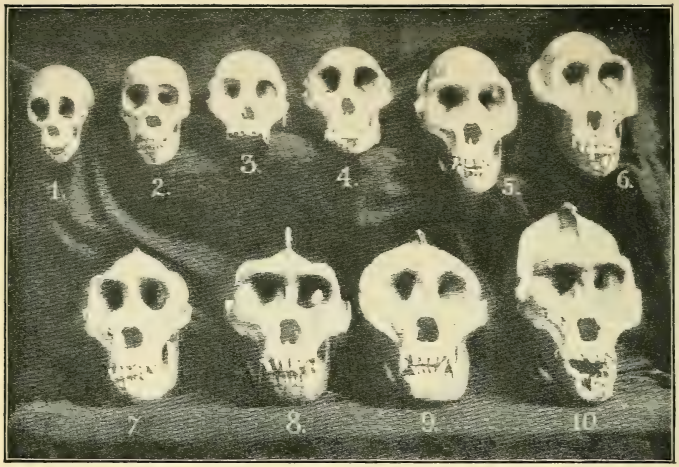
In the lake region south of the river they are fairly abundant as far south as the head-waters of the Rembo, Nkami, and through the low country of the Esyira tribe; but they are very rare in the remote forests and unknown in the highlands and plains of that country. South of the Chi Loango they are quite unknown, and south of the Congo they are never heard of.

There are no possible means of estimating their number; but they are not so numerous as has been supposed, and from the reckless slaughter carried on by the natives in order to secure specimens for white men, they may ultimately become extinct. Up to this time their ferocity alone has saved them from such a fate. But the use of improved arms will soon overcome that barrier.

The skeleton of the gorilla is so nearly the same as that of the chimpanzee — which has elsewhere been compared to the human skeleton — that we shall not review the comparison at length; but we must note one marked feature in the external form of the skull, which differs alike from other apes and from man.

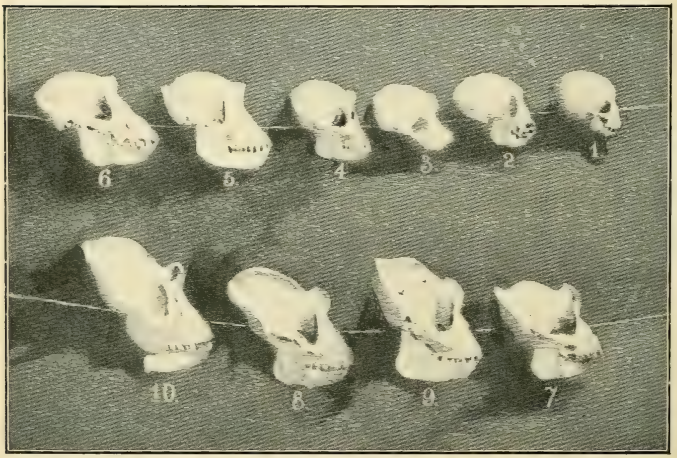
The skull of the young gorilla is much like that of the chimpanzee and remains so until it approaches the adult state. At this period the ridge above the eyes becomes more prominent, and at the same time a sharp, bony ridge begins to develop along the temples and continues around the back of the head on that part of the skull called the occiput. At this point it is intersected by another ridge at right angles to it. This is called the sagittal ridge. It runs along the top of the head towards the face; but on the forehead it flattens nearly to the level of the skull and divides into two very low ridges, which turn off to a point above the eyes and merge into that ridge. These form a continuous part of the skull and are not joined to it by sutures. The mesial crest in a very old specimen rises to the height of nearly two inches above the surface of the skull, and imparts to it a fierce and savage aspect; but in the living animal the crests are not seen, as the depressions between them are filled with large muscles, which make the head look very much larger than it otherwise would. These crests affect only the exterior of the skull and do not appear to alter the form or size of the brain cavity, which is slightly larger in proportion than that of the chimpanzee. These crests are peculiar to the male gorilla. The female skull shows no trace of them.

There is at least one case in which the male gorilla has failed to develop this crest. In the series of skulls found in the cuts given herewith, No. 6 is that of an adult male gorilla. I know it to be such, for I dissected the animal and prepared the skeleton for preservation. He was killed in the basin of Lake Ferran Vaz, not more than three or



SKULLS OF GORILLAS—FRONT VIEW

(From a Photograph in Buffalo Museum.)



SKULLS OF GORILLAS—PROFILE VIEW

(From a Photograph in Buffalo Museum.)

four hours' walk from my cage, and his body was at once brought to me. A good idea of his size can be obtained by reference to another cut given herewith. This cut is copied from a photograph taken by me. It shows some natives in the act of skinning the gorilla.

In this picture the gorilla is sitting flat on the sand; his body is limp and is somewhat shorter than it was in life. Yet it can be seen that the top of his head is higher than the hip of the man who is holding him. In the foreground, on the left of the gorilla, sits the man who killed him. He is sitting on a log and is thereby a little more elevated than the gorilla. It did not occur to me to place them side by side in order to make a comparison. As he sits, the body and head of this gorilla measure nearly four feet from the base of the spinal column to the top of the head. I had no means of weighing him, but made an estimate by lifting him. I estimate that he weighed at least two hundred and forty pounds. He was not an old specimen, but comparing the skull with No. 7, in which the crests are well developed, it is found to be larger, and other things point to the conclusion that he was older than No. 7.

I am aware that one specimen does not of itself establish anything, but in this case it shows that the male gorilla does not always develop the crest. The head of this specimen was surmounted by the red crown which I have elsewhere described. No. 1, which is the skull of my pet, Othello, had the same mark. He was captured near the place where No. 6 was killed.

No. 2 is the skull of a female nearly four years old. She had the same mark. She was also captured in the same

NATIVES SKINNING A GORILLA

(From a Photograph.)

basin, but on the opposite side of the lake. The facial bones of No. 6 show that he had received a severe blow early in life; but the fragments had knit together, and the effect could not be seen in the face of the ape while alive.

No. 8 is the skull of a large male from Lake Izanga, which is on the south side of the Ogowé River, more than a hundred miles from the coast. This is one of the three centers of population mentioned. I do not know the history of this specimen. It was presented to me by Mr. James Deemin, an English trader, with whom I traveled many days on the Ogowé River, and who extended to me many courtesies.

No. 5 is the skull of an adult female. By comparing it in profile with No. 6, it will be seen that they resemble each other closely, except that the muzzle of the latter projects a little more, and the curvature of the skull across the top is less; but the transverse distance is a little greater. Nos. 2, 3, 4, and 5 are females; the others are males.

While this series is not complete in either sex, it is an excellent one for comparative study. I do not know whether or not the heads of those with the crests were the same color as No. 6, but the *ntyii*, which I have mentioned as possibly a new specimen of the gorilla, does not have this crown of red. His ears are also said to be larger than those of the gorilla, but smaller than the chimpanzee's. He is reputed to grow to a larger size than either of them. The skin of the gorilla is a dull black or mummy color over the body; but over the face it is a jet black, quite smooth and soft. It looks almost like velvet.

One fact peculiar to this ape is that the palms of both the hands and the feet are perfectly black. In other animals these are usually lighter in color than the exposed parts. In most other apes, monkeys, baboons, and lemurs, as in all races of men, the palms are lighter than the backs of the hands and feet. The thumb of the gorilla is more perfect than that of the chimpanzee, yet it is smaller in proportion to the hand than in man. The hand is very large, but has more the shape of the hand of a woman than that of a man. The fingers taper in a graceful manner, but by reason of the web alluded to they appear much shorter than they really are. It is not really a web in the true sense, but the integument between the fingers is extended down almost to the second joint. The forward edge of this is concave when the fingers are spread. When the fingers are brought together the skin on the knuckles becomes wrinkled, and the web almost disappears. This is more readily noticed in the living animal than in the dead. The texture of the skin in the palms is coarsely granulated, and the palmar lines are indistinct. The great toe sets at an angle from the side of the foot, thus resembling a thumb. It has more prehension than the corresponding member of the hand. The foot is less flexible than the hand, but it has greater strength and prehension.

At this point I wish to draw attention to one important fact. The tendons of the foot, which open and close the digits, are imbedded in the palm in a deep layer of coarse, gristly matter, which forms a pad, as it were, under the soles of the foot and prevents it from bending. Therefore it is not possible for a gorilla to sleep on a perch.

In this respect he resembles man more than the chimpanzee does, but it is quite certain that neither of them has the true arboreal habit. The gorilla is an expert climber, but he cannot sleep in a tree. In the hand the tendons which close the fingers are the same length as the line of the bones, and this permits him to open the fingers to a straight line, which the chimpanzee cannot do.

One other important point I desire to mention. The muscles in the leg of the gorilla will not permit the animal to stand or walk erect. The large muscle at the back of the leg is shorter than the line of the bones of the leg above and below the knee. When this muscle is brought to a tension, those bones form an angle of from 130° to 160°, or thereabouts. So long as the sum of two sides of a triangle is greater than the other side, a gorilla can never bring his leg into a straight line. In the infant state, while the muscles are elastic and the bones less rigid, the leg can be forced nearly straight. The habit of hanging by the arms and walking with them in a straight line develops the corresponding muscle in those members so that the bones can be brought in line and the limbs straightened.

The gorilla can stand upon his feet alone and walk a few steps in that position; but his motion is very awkward; his knees turn outward, forming an angle of 40° or 50° on either side of the mesial plane. He never attempts to walk in this position except at perfect leisure, and then he holds on to something with his hands.

The leg of the gorilla from the knee to the ankle is almost the same in size. In the human leg there is what

YOUNG GORILLA WALKING

(From a Drawing.)

is called the "calf" of the leg, but in the apes this is very small. However, there is a tendency in the ape to develop that feature. In the human species the calf of the leg appears to belong to the higher types of men. As we descend from the highest races of mankind this characteristic decreases, and it almost disappears in the lowest savage. The pygmies and the bushmen have smaller calves than any other men. It is not to be inferred from this that apes would ever have this feature developed in them by their elevation to a higher plane. So long as they remain apes they will retain this characteristic, which is one of the distinctive features of their apehood. One thing which makes the calf appear smaller in the gorilla is the large size of the muscles about the ankle and the flexibility of that joint. Also the fact that the joint of the knee is larger in proportion to the leg makes it appear smaller than it really is. The corresponding parts of the arm are more like those of the human body.

In a sitting posture the gorilla rests his body upon the ischial bones and sits with his legs extended or crossed. The chimpanzee usually squats, resting the ischial bones upon his heels. He sometimes sits, but more frequently he squats. When in either of these attitudes both kinds usually fold their arms across their breasts.

The hair of the gorilla is irregular in growth. It is more dense than that of the chimpanzee, but less uniform in size and distribution. On the breast it is very sparse, while on the back it is dense and interspersed with long, coarse hairs. The hair on the arms is long and coarse. The ground color is black, but the extreme end of the hair

is tipped with pale white. This is so even in early youth. With age the white encroaches, until in extreme age the animal becomes quite gray. The top of the head is covered with a growth of short hair. In certain specimens this crest is of a dark tan color. It looks almost like a wig. This mark seems to be peculiar to certain localities. It is uniform among those captured in the Ferran Vaz basin.

A white trader living on Ferran Vaz Lake claims to have seen a gorilla which was perfectly white. It was said to have been seen on a plain near the lake in company with three or four others. It was thought to be an albino. In my opinion it was only a very aged specimen turned gray. A few of them have been secured that were almost white. It is not, however, such a shade of white as would be found in an animal whose normal color is white. I cannot vouch for the color of this ape seen on the plain, but there must have been something peculiar in it to attract attention among the natives. They regarded it as something very extraordinary.

So far, only one species of this ape is known to science; but there are certain reasons to believe that two species exist. In the forest regions of Esyira the natives described to me another kind of ape, which they averred was a half-brother to the gorilla. They know the gorilla by the native name *njina*, and the other type by the name *ntyii*. They do not confuse this with the native name *ntyigo*, which is the name of the chimpanzee. Neither is it a local name for the *kulu-kamba*. All of those apes are known to the natives. They described in detail, and quite correctly, the three known kinds of ape. In addition they

gave me a minute account of the appearance and habits of a fourth kind, which I believe to be another species of the gorilla. They claim that he is more intelligent and human-like than any one of the others. They say that his superior wisdom makes him more alert and, therefore, more difficult to find. He is said always to live in parts of the forest more remote from human habitation. On my next voyage I mean to hunt for this new species.

The dental formula of the gorilla is the same as that of man; but the teeth are larger and stronger, and the canine teeth are developed into tusks. One thing to be remarked is the great variety of malformations in the teeth of this animal. It is a rare thing to find among them a perfect set of teeth, except in infancy. The cause of this deficiency appears to be violence.

The eyes of the gorilla are large, dark, and expressive, but there is no trace of white in them. That part of the eye which is white in man is a dark coffee-brown in the gorilla. It becomes lighter as it approaches the base of the optic nerve. The taxidermist or the artist who often furnishes him with a white spot in the corner of his eye does violence to the subject. Those who pose him with his mouth opened like a fly-trap, and his arms raised like a lancer, ought to be banished from good society. It is true that such things lend an aspect of ferocity to the creature, but they are caricatures of the thing they mean to portray.

The ears of the gorilla are very small and lie close to the sides of the head. The model of them is much like the human ear. The lower lip is massive, and the animal

frequently relaxes it, so that a small red line is visible between the lips. The usual height of the adult male gorilla, if standing quite erect, is about five feet ten inches. The tallest specimen that has ever been taken is a trifle more than six feet two inches.

I shall not pursue the comparison into minute details, but shall leave that to the specialist, in whose hands it will be treated with more skill and greater scope. As my especial line of research has been in the study of the speech and the habits of these animals, I shall confine myself to that. But the general comparison made is necessary to a better understanding of these subjects.

CHAPTER XXI

Habits of the Gorilla — Social Traits — Government — Justice — Mode of Attack — Screaming and Beating — Food

STUDYING the habits of the gorilla in a wild state is attended with much difficulty, but the results obtained during my sojourn of nearly four months among them in the forest are an ample reward for the efforts made. In captivity the habits of animals are made to conform in a measure to their surroundings, and since those are different from their natural environment, many of their habits differ in a like degree from the normal. Some are foregone, others modified, and new ones are acquired. Therefore, it is difficult to know exactly what the animal was in a state of nature.

In the social life of the gorilla there are certain things in which he differs from the chimpanzee, but there are others in which they closely resemble each other. From the native accounts of the modes of life of these two apes there would appear to be a much greater difference than a systematic study of them reveals. The native version of things frequently has a germ of truth which may serve as a clue to the facts in the case ; and while we cannot safely rely upon all the details of the tales they relate, we forgive their mendacity and make use of the suggestions they furnish.

The gorilla is polygamous in habit, and he has an incipient idea of government. Within certain limits he has a faint perception of order and justice, if not of right and wrong. I do not mean to ascribe to him the highest attributes of man or to exalt him above the plane to which his faculties justly assign him ; but there are reasons to justify the belief that he occupies a higher social and mental sphere than other animals, except the chimpanzee.

In the beginning of his career of independent life the young gorilla selects a wife with whom thereafter he appears to sustain the conjugal relation, and he maintains a certain degree of marital fidelity. From time to time he adopts a new wife, but does not discard the old one. In this manner he gathers around him a numerous family, consisting of his wives and children. Each mother nurses and cares for her own young, but all of them grow up together as the children of one family. The mother sometimes corrects and sometimes chastises her young. This presupposes some idea of propriety.

The father exercises the function of patriarch in the sense of a ruler, and the natives call him *ikomba njina*, which means "gorilla chief." This term is derived from the third person singular of the verb *kamba*, "to speak" — *i kamba*, "he speaks." Hence "spokesman," or one that speaks for others. To him all the others show a certain amount of deference. Whether this is due to fear or respect is not certain ; but here is at least the first principle of dignity.

The gorilla family of one adult male and a number of females and their young practically constitutes within itself a nation. There do not appear to be any social

relations between different families, but within the same household there is apparent harmony. The gorilla is nomadic and rarely ever spends two nights in the same place. Each family roams about from place to place in the bush in search of food, and wherever they may be when night comes on, there they select a place to sleep.

The largest family of gorillas that I ever heard of was estimated to contain twenty members. The usual number is rarely ever more than ten or twelve. The chimpanzees appear to go in somewhat larger groups than these. Sometimes in a single group of chimpanzees as many as three, or even four, adult males have been seen. When the young gorilla approaches the adult state he leaves the family group, finds himself a mate, and sets out in the world for himself. I observe that, as a rule, when one gorilla is seen alone in the forest it is usually a young male about reaching the state of manhood. It is probable that he has then set out for himself, and that he is in search of a wife. When two only are seen together they usually prove to be a young male and a young female. It sometimes occurs that three adults are seen with two or three children. In large families are seen young ones of different ages, from one year old to five or six years old. The older children are always fewer in number than the younger ones. I have once seen a large female quite alone except for her babe. Whether she lived alone or was only temporarily absent from her family I had no means of ascertaining.

The gorilla chief does not provide food for his family. On the contrary, it is said that they provide for him. I have been informed, on two occasions and from different

sources, that the gorilla chief has been seen sitting quietly eating under the shade of a tree while the others collected and brought to him his food. I have never myself witnessed such a scene, but it seems probable that the same story coming from two sources has some foundation of fact.

In the matter of government the gorilla appears to be somewhat more advanced than most animals. The chief leads the others on the march and selects their feeding grounds and their places to sleep. He breaks camp, and the others all obey him in these respects. Other gregarious animals do the same, but, in addition to these things, the gorillas from time to time hold a rude form of court, or council, in the jungle. It is said that the king presides on these occasions ; that he sits alone in the center, while the others stand or sit in a semicircle about him and talk in an excited manner. Sometimes all of them are talking at once. Many of the natives claim to have witnessed these proceedings ; but what they mean or allude to no native undertakes to say, except that there appears to be something of the nature of a quarrel. To what extent the chief gorilla exercises the judicial function is a matter of doubt, but there appears to be some real ground for the story.

As to the succession of the kingship there is no authoritative information as yet to be had ; but from the meager data upon this point the belief is that on the death of the *ikomba* if there be an adult male he assumes the royal prerogative ; otherwise the family disbands and eventually becomes absorbed by or attached to other families. Whether this new leader is elected in the manner in which other animals appoint a leader, or assumes it by reason of

his age, cannot now be stated. There is no doubt that in many instances families remain intact for a long time after the death of their *ikomba*.

It has been stated by many writers that the gorilla builds a rude hut for himself and family. I have found no evidence that such is the fact. The natives declare that he does this, and some white men affirm the same. During my travels through the country of the gorilla I offered frequent and liberal rewards to any native who would show me a specimen of this simian architecture; but I was never able to find a trace of one made or occupied by any ape. Sometimes they take shelter from the tornadoes, but it is usually under some fallen tree or a cluster of broad leaves. There is absolutely nothing to indicate that they rearrange any part of tree or leaves. So far as I could find, there is absolutely no proof that any gorilla ever put two sticks together with the idea of building a shelter. As to his throwing sticks or stones at an enemy, there is nothing to verify it, but much to controvert it. It is a mere freak of fancy.

The current opinion that a gorilla will attack a man without being provoked to it is another popular error. He is shy and timid. He shrinks alike from man and from other large animals. When he is in a rage he is both fierce and powerful; but his ferocity and strength are rated above their value. In combat no doubt he is a stubborn foe, but no one I have ever met has seen him thus engaged. His mode of attack, as described by certain travelers, is a mere theory. It is said that in this act he walks erect, furiously beats upon his breast, roars, and yells. In this

manner he first terrorizes and then seizes his adversary, tears open his breast and drinks the blood. I have never seen a large gorilla in the act of assault.

During my stay in the jungle I had a young gorilla in captivity. I made use of him in studying the habits of his race. I kept him tied with a long line which allowed him room to play or climb about in the bushes, and at the same time prevented him from escaping into the forest, as he always tried to do the instant he was released. I frequently released him for the purpose of watching his mode of attack when recaptured. While being pursued he rarely looked back, but when overtaken he invariably assailed his captor. This gave me an opportunity of seeing his method of attack. In this he displayed both skill and judgment. As my native boy approached him he calmly turned one side to the foe and, without facing the boy, rolled his eyes in such a manner as to see him and at the same time conceal his own purpose. When the boy came within reach, the gorilla grasped him by thrusting the arm to one side and obliquely backwards. When he had seized his adversary by the leg, he instantly swung the other arm around with a long sweep, so as to strike the boy a hard blow. Then he used his teeth. He seemed to depend more upon the blow than upon the grasp, but the latter served to hold the object of attack within reach. In every case he kept one arm and one leg in reserve until he had seized his adversary.

It is true that these attacks were made upon an enemy in pursuit, but his mode of doing this appeared to be natural to him. He struck a severe blow and showed no

sign of tearing or scratching his opponent. In these attacks he made no sound. I do not say that other gorillas never scream or tear their victims, but I take it that the habits of the young are much, if not quite, the same as those of their elders; and from a study of this specimen I am forced to modify many opinions imbibed from reading or from pictures and museum specimens which I have seen. Many of them represent the gorilla in absurd and sometimes impossible attitudes. They certainly do not represent him as I have seen him in his native wilds. I had a young female gorilla as a subject for study for a short time. Her mode of attack was about the same as that just described, but she was too large to risk very far in such experiments.

When the chimpanzee attacks, — so far as I have seen among my own specimens, — he approaches his enemy and strikes with both hands, one slightly in advance of the other. After striking a few blows he grasps his opponent and uses his teeth. Then, shoving him away, he again uses the hands. Usually, on beginning the attack, he accompanies the assault with a loud, piercing scream. Neither he nor the gorilla closes the hand to strike or uses any weapon except the hands and the teeth.

I have read and heard descriptions of the sounds made by gorillas, but nothing ever conveyed to my mind an adequate idea of their real nature until I heard them myself within about a hundred feet of my cage in the dead of night. By some it has been called roaring, and by others howling; but it is neither a roar nor a howl. They utter a peculiar combination of sounds, beginning in a low, smooth

tone, which rapidly increases in pitch and frequency, until it becomes a terrific scream. The first sound of the series and each alternate sound are made by expiration ; the intermediate ones appear to be by inspiration. How this is accomplished it is difficult to say. The sound as a whole resembles the braying of an ass, except that the notes are shorter, the climax is higher, and the sound is louder. A gorilla does not yell in this manner every night, but when he does so it is usually between two and five o'clock in the morning. I have never heard the sound during the day nor in the early part of the night. When screaming he repeats the series from ten to twenty times, at intervals of one or two minutes apart. I know of nothing in the way of vocal sounds that can inspire such terror as the voice of the gorilla. It can be heard over a distance of three or four miles. I can assign no definite meaning to it unless it is intended to alarm some intruder.

One morning, between three and four o'clock, I heard two of them screaming at the same time. I do not mean at the same instant, but at intervals during the same period of time. One of them was within about a third of a mile of me, and the other in another direction, perhaps a mile away. The points we respectively occupied formed a scalene triangle. The sounds made by the two apes did not appear to have any reference to each other. Sometimes they would alternate, and at other times they would interrupt each other. They were both made by giants of their kind, and every leaf in the forest vibrated with the sound. This was during the latter part of May. They scream in this way from time to time throughout the

year, but it is most frequent and violent during February and March.

This wild screaming is sometimes accompanied by a peculiar beating sound. It has been vaguely and variously described by travelers, and currently believed to be made by the animal beating with his hands upon his breast; but that is not the fact. The sound cannot be made by that means. The quality of the sound shows that such cannot be the means employed. I have several times heard this beating and have paid marked attention to its character. At a great distance it would be difficult to determine its exact quality.

On one occasion, while passing the night in a native town, I was aroused from sleep by a gorilla screaming and beating within a few hundred yards of the village. I drew on my boots, took my rifle, and cautiously crossed the open ground between the village and the forest. This brought me within about two hundred yards of the animal. The moon was faintly shining, but I could not see the beast, and I had no desire to approach nearer at such a time. I distinctly heard every stroke. I believe the sound was made by beating upon a log or piece of dead wood. He was beating with both hands. The alternating strokes were made with great rapidity. The order of the strokes was not unlike that produced by the natives in beating their drums, except that in this instance each hand made the same number of strokes, and the strokes were in a constant series, rising and falling from very soft to very loud, and *vice versa*. A number of these runs followed one another during the time the voice continued. Between

the first and second strokes the interval was slightly longer than that between the second and third, and so on through the scale. As the beating increased in loudness the interval shortened in an inverse degree, while in descending the scale the intervals lengthened as the beating softened, and the author of the sound was conscious of the fact.

I could trace no relation in time or harmony between the sound of the voice and the beating, except that they began at the same time and ended at the same time. The same series of vocal sounds was repeated each time, beginning on the low note and ending in each case with the note of the highest pitch, while the rise and fall of the series of the beaten sounds were not measured by the duration of the voice. The series each time began with a soft note, but ended at any part of the scale at which it happened to be at the time the voice ceased. The coinciding notes were not the same in every case.

No doubt the gorilla sometimes beats upon his breast. He has been seen to do this in captivity, but the sounds described above were not so made. Since the gorilla makes these sounds only at night, it is not probable that any man ever saw him in the act. It does not require a delicate sense of hearing to distinguish a sound made by beating the breast from that made by beating on dead wood or other similar substance.

I have attributed the above sound to the gorilla, because I have been assured by many white men and scores of natives that it was made by him; but since my return from Africa I have had time to consider and digest certain facts tabulated on my first voyage, and, as a result of these

reflections, I doubt whether this sound is made by the gorilla. There are reasons to believe that it is made by the chimpanzee.

I observed that my own chimpanzees made a sound exactly the same as that I heard in the forest, except that it was less in volume. This was due to the age of the apes that made it. I could induce them at any time to make the sound, and frequently did so in order to study it. After my arrival in New York I found that Chico — the big chimpanzee belonging to Mr. Bailey — frequently made the same sound. This he always did at night. The cry was said to be so loud and piercing that it fairly shook the stately walls of Madison Square Garden. From reading the description given by the late Professor Romanes of the sound made by "Sally" in the London Gardens, it appears that she made the same sound. It is well known to the natives that chimpanzees beat on some sonorous body, which the natives call a drum. In 1890 I called attention to the beating practiced by the two chimpanzees in the Cincinnati Gardens. They frequently indulged in beating with their knuckles upon the floor of their cage. This was done chiefly by the male. The late E. J. Glave described to me the same thing as being done by the chimpanzees in the middle Congo basin.

It is not probable that two animals of different genera utter the same exact sound, and this is more especially true of a sound that is complex or prolonged. Neither is it likely that the two would have a common habit, such as beating on any sonorous body. Since it is certain that one of these apes does make the sound described, it is more

than probable that the other does not. The same logic applies to the beating. Many things that are known to the chimpanzee are taken for granted in the gorilla; but it is erroneous to suppose that in such habits as these they would be identical. In view of the facts I am inclined to believe the sounds described are made by the chimpanzee and not by the gorilla.

There is another case in which the gorilla is wrongly portrayed. The female gorilla is represented as carrying her young clinging to her waist. I have seen the mother in the forest, with her young mounted upon her back, its arms around her neck, and its feet hooked in her armpits. I have never seen the male carry the young, but in a number of specimens of advanced age I have seen and called attention to the mark upon the back and sides which indicates that he does this. It is in the same place that the young one rests upon the back of the mother. In form it is like an inverted Y, with the base resting on the neck and the prongs reaching under the arms. This mark is not one of nature. It is the imprint of something carried there. In some specimens the hair is worn off until the skin is almost bare. The prongs are more worn than the stem of the figure. This is due to the fact that the abrasion is greater upon those parts than elsewhere. I do not assert that such is the cause, but I do assert that such is the fact.

The gorilla is averse to human society. In captivity he is morose and sullen. He frets and pines for his liberty. His face appears to be incapable of expressing anything resembling a smile, but when in repose it is not repugnant. In anger his visage depicts the savage instincts of his

SALLY JONES (YOUNG GORILLA) CAUGHT NAPPING

(From a Photograph.)

nature. He does not seem to bear captivity well, even when not removed from his native climate. The longest any one of them has ever been known to live in captivity was about three and a half years. The one shown in the accompanying cut belonged to a trader by the name of Jones. The name of the gorilla was Sally, and I have called her Sally Jones. She lived with her master three years and a half and died of grief at his absence.

The gorilla which lived with me for a time in the forest was a sober, solemn, stoical creature, and nothing could arouse in him a spirit of mirth. The only pastime he cared to indulge in was turning somersaults. Almost every day, at intervals of an hour or so, he would stand up for a moment, then put his head upon the ground, turn over, rise to his feet again, and look at me as if expecting my applause. His actions in this feat were very much like those of a boy. He frequently repeated this act a dozen times or more, but never smiled or evinced any sign of pleasure. He was selfish, cruel, vindictive, and retiring.

One peculiar habit of the gorilla, both wild and in captivity, is that of relaxing the lower lip when in repose. It is not done when the creature is in a sullen mood, but frequently, when perplexed or in a deep study, this occurs. Another habit is that of protruding the end of the tongue between the lips, until it is about even with the outer edge of them. The end of the tongue is somewhat more blunted than that of the human. This habit is so frequent with the young gorilla that it would appear to have some meaning; but I cannot suggest what it is.

In sleeping, the habit of the gorilla is to lie upon the back or side, with one or both arms placed under the head as a pillow. He cannot sleep on a perch, — as we have already noted, — but lies upon the ground at night. I had pointed out to me the place at the base of a large tree where a school of them had slept the night before. One imprint was quite distinct. The stories told about the king gorilla, or *ikomba*, placing his family in a tree while he sits on watch at the base is another case of supposition.

The food of the gorilla is not confined to plants and fruits. He is fond of meat and eats it either raw or cooked. He secures a supply of this kind of food by catching small rodents of various kinds, lizards, toads, etc. It is also well known that he robs the nests of birds, taking the eggs or the young. A native once pointed out to me the quills and bones of a porcupine which had been left by a gorilla who had eaten the carcass. It is not at all rare for them to do this. The fruits and plants upon which they chiefly live are acidulous in taste, and some of them are bitter. They often eat the fruit of the plantain, but they prefer the stalk of that plant; this they twist or break open and eat the succulent heart. They do the same with the batuna, which grows all through the forest. The fruit of this plant is a red pod filled with seeds imbedded in a soft pulp. It is slightly acid and astringent. The wild mangrove, which forms a staple article of food for the chimpanzee, is rarely if ever eaten by the gorilla. I once saw a gorilla try to seize a dog, but whether or not it was for the purpose of eating the flesh I cannot say. One, however, did catch and devour a small dog on board the steamer

Nubia, while on a voyage home from Africa. Both animals belonged to Captain Button, and from him I learned of the incident. Gorillas have no fixed hours for eating, but they usually eat in the early morning or the late afternoon. In a few instances I have seen them refuse meat. They are perhaps less devoted to eating flesh than the chimpanzee is.

In the act of drinking, the gorilla takes a cup, places the rim in his mouth, and drinks in the same manner as a human being does. He does this without being taught, while the chimpanzee prefers to put both lips in the vessel. I have never known a gorilla that would drink beer, spirits, coffee, or soup. Their drink is limited to milk or water. The chimpanzee drinks beer and various other things.

CHAPTER XXII

Othello and Other Gorillas — Othello and Moses — Gorilla Visitors — Gorilla Mother and Child — Scarcity of Gorillas — Unauthentic Tales

WHILE I was living in my cage in the jungle I secured the young gorilla to whom I gave the name Othello. He was about six months old, strong, hardy, and robust. I found him to be a fine subject for study and made the best use of him for that purpose. I have elsewhere described his character, but his illness and death are matters of interest.

At noon on the day of his decease he appeared to be quite well and in fine humor. He was turning somersaults and playing like a child with a native boy. He evinced much interest in his play, and his actions indicated that it gave him pleasure; but his face never once betrayed the fact. It was amusing to see him with the actions of a romping child and the face of a cynic.

He was supplied with plenty of his favorite food, had a good appetite, and ate with a relish. Just after noon I sent the boy on an errand. Near the middle of the afternoon I observed that Othello was ill. He declined to eat or drink and lay on his back on the ground, with his arms under his head as a pillow. I tried to induce him to walk with me, to play, or to sit up, but he refused. By four o'clock he

was very ill. He rolled from side to side and groaned in evident pain. He kept one hand upon his stomach, where the pain appeared to be located. He displayed all the symptoms of gastric poisoning, and I have reason to believe now that the boy had given him poison. I should regret to foster this suspicion against an innocent person, but it is based upon certain facts that I have learned since that time.

While I sat in my cage watching Othello, who lay on the ground a short distance away, I discovered a native approaching him from the jungle. The man had an uplifted spear in his hand, as if in the act of hurling it at something. He had not seen me, but it did not for a moment occur to me that he had designs upon my pet. I spoke to him in the native language, whereupon he explained that he had seen the young gorilla and suspected that there was an old one close at hand, and being in fear of an attack, he was prepared. He said he was not afraid of a little one, but desired to capture him. I informed him that the gorilla was ill. He made an examination and assured me that Othello would die.

The man departed, and Othello continued to grow worse. His sighing and groaning were really touching. I gave him an emetic, which produced good results. I also used some vaporoles to resuscitate him, but my skill was not sufficient to meet the demands of his case. His conduct was so like that of a human being that it deeply impressed me, and being alone with him in the silence of the dreary forest at the time of his death, the scene had a touch of sadness that impressed me with a deeper sense of its reality.

Moses watched the dying ape as if he knew what death meant. He showed no signs of regret, but his manner was such as to suggest that he knew it was a trying hour.

Othello died just before sunset, but for a long time prior to this he was unconscious. The only movements made by him were spasmodic actions caused by pain. The fixed and vacant stare of his eyes in his last hour was so like that of man in the hour of dissolution that no one could look upon the scene and fail to realize the solemn fact that this was death. The next day I dissected him and prepared the skin and the skeleton to bring home with me. They are now, with those of Moses and others, in the Museum of the University of Toronto.

When I first secured this ape and brought him to my house in the bush, he was placed on the ground a few feet from my cage. Near him were laid some bananas and sugarcane belonging to Moses, who had not yet seen the stranger. The gorilla was in a box with one side open, so that he could easily be seen. My purpose was to see how each would act on discovering the other. When Moses observed the food he proceeded to help himself. On seeing the gorilla he paused a moment and gave me an alarm. He was not himself deterred from taking a banana. He seized one and retreated. While he was eating the banana, I took the gorilla from the cage and set him on the ground by it. I petted him and gave him some food. Moses looked on but did not interfere.

When I returned to my cage Moses proceeded to investigate the new ape. He approached slowly and cautiously

within about three feet of it. He walked around the gorilla a couple of times, keeping his face towards it, and gradually getting a little nearer. At length he came up within a few inches of one side of the gorilla and stopped. He stood almost on tiptoe, with only the ends of his fingers touching the ground. The gorilla continued to eat his food without so much as giving Moses a look. Moses placed his mouth near the ear of the gorilla and gave one terrific yell. The gorilla did not flinch or even turn his eyes. Moses stood for a moment looking as if in surprise that he had made no impression. After this time he made some friendly overtures to the gorilla, but the latter did not entertain them with favor, beyond maintaining terms of peace. They never quarreled, but Othello always treated Moses as an inferior. I do not know if he entertained a real feeling of contempt, but his manner was haughty and condescending.

There were but few articles of food that he and Moses liked in common, and, therefore, they had no occasion to quarrel; but they never played together or cultivated any friendly terms, as the chimpanzees did among themselves. This may have been due to the fact that the gorilla was so exclusive in his demeanor towards the chimpanzee as to forbid all attempts of the latter to become intimate. The chimpanzee by nature is more sociable and is fond of human society. He imitates the actions of man in many things and quickly adapts himself to new conditions, while the gorilla is selfish and retiring. He can seldom be reconciled to human society. He does not imitate man nor readily yield to the influence of civilization.

One special trait of the gorilla which I wish to emphasize is that he is one of the most taciturn of all the family. This fact does not confirm my theory as to their faculty of speech; but it is a fact, so far as I observed, although the natives say that he is as loquacious as the chimpanzee. Among the specimens that I have studied, both wild and in captivity, I have never heard but four sounds that differed from each other, and of these only two could properly be defined as speech. I do not include the screaming sound described in another chapter. I have not been able, so far, to translate the sounds that I have heard, and they cannot be spelled with our letters.

There is one sound which Othello often used. It was not a speech sound, but a kind of whine, always coupled with a deep sigh. When left alone for a time he became oppressed with solitude. At such times he often heaved a deep sigh and uttered this strange sound. The tone and manner strongly appealed to the feelings of others, and while he did not appear to address it to any one or have any design in making it, it always touched a sympathetic chord, and I was sometimes tempted to release him. Another sound which was not within the pale of speech was a kind of grumbling sound. This frequently occurred when he was eating. It was not exactly a growl, but a kind of complaint. Twice I heard this same sound made by wild ones in the forest near my cage. The only thing that I can compare it to is the habit that cats have of growling while eating. It appears to be done only when something is near. It is possibly intended to deter others from trying to take the food.

During my life in the cage I saw twenty-two gorillas ; but I shall describe only a few of them, as their actions in most instances were similar. The first one that I had the pleasure of seeing in the jungle came within a few yards of the cage before it was yet in order to receive. He was exactly half grown. He must have been attracted by the noise made in putting the cage together. He advanced with caution, and when I discovered him he was peering through the bushes, as if to ascertain the cause of the sounds. When he saw me, he tarried only a few seconds and hurried off into the jungle. I did not disturb or shoot at him, because I desired him to return.

On the third day after I went to live in the cage a family of ten gorillas was seen to cross an open space along the back of a batch of plantains near one of the villages. A small native boy was within about twenty yards of them when they crossed the path in front of him. A few minutes later I was notified of their vicinity. I took my rifle and followed them into the jungle until I lost the trail. A few hours after this they were again seen by some natives not far away from my cage, but they did not come near enough to be seen or heard. The next day a family came within some thirty yards of the cage. The bush was so dense that I could not see them, but I could distinguish four or five voices. They seemed to be engaged in a broil of some kind. I suppose it was the family that had been seen the day before. The second night after that I heard the screams of one in the forest some distance from me, but I do not know whether it was the king of this family or another.

One day as I sat alone a young gorilla, perhaps five years old, came within six or seven yards of the cage and took a peep. I do not know whether or not he was aware of its being there until he was so near. He stood for a time, almost erect, with one hand holding on to a bough. His lower lip was relaxed, showing the red line mentioned elsewhere, and the end of his tongue could be seen between his parted lips. He did not evince either fear or anger, but rather appeared to be amazed. I heard him creeping through the bush a few seconds before I saw him. As a rule, they move so stealthily as not to be heard. I know of no other animal of equal size that makes so little noise in going through the forest. During the short time he stood gazing at me I sat still as a statue, and I think he was in doubt as to whether or not I was alive. He did not run away, but after a brief pause turned off at an angle and quietly departed. He lost no time, but made no great haste. The only sound he made was a low grunt, and this he did not repeat.

At another time I heard two making a noise among the plantains near me. I could obtain only a glimpse of them, but as well as I could see they were of good size, being almost grown. They were making a low sound from time to time, something such as I have described; but I could not see them well enough to frame any opinion as to what it meant. They were certainly not quarreling, and I was not sure that they were eating. I afterwards went and looked to see if I could find where they had broken any of the stalks. Their trail was visible through the grass and weeds, but I could find no broken stalk. They were

moving at a very leisurely gait and must have been within hearing distance some ten or twelve minutes. They were quite alike in color and appeared to be so in size, although the adult male attains a much greater size than the female.

On one occasion I was standing outside of the cage some twenty yards away, and Moses was sitting on a dead log near by. I turned to him and was in the act of sitting down by him when he gave alarm. This he did in an undertone, apparently to avoid attracting the attention of the thing against which the warning was intended. I looked around, and discovered a gorilla standing not twenty yards away. He had just discovered us. He gazed for a moment and started on, moving obliquely towards the cage. I turned to retreat. At this instant Moses gave one of his piercing screams, which frightened the gorilla and he fled. He changed his course almost at right angles. He was going at a good rate before Moses screamed, but he at once increased his pace.

One day I heard three sounds which a native boy assured me were made by gorillas; they were in different directions from the cage. It was not a scream nor a howl, but somewhat resembled the human voice calling out with a sound like "he-oo!" These sounds were repeated at intervals, but did not appear to be in the relation of call and answer; and the animals making them did not approach each other while calling. The sounds were the same except in volume. One of them appeared to be made by an animal much larger than the animals that had made the two other sounds. I should state that this sound rarely occurred within my hearing during my stay in that part,

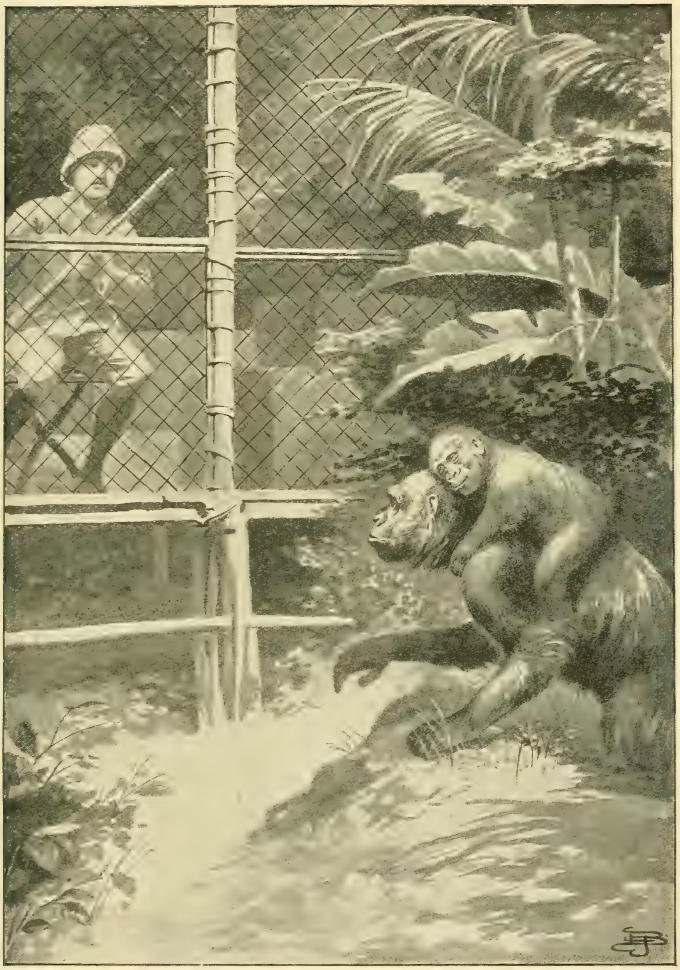
and with one exception I never heard a gorilla make any loud sound during the day.

Another interesting specimen came prowling through the jungle as if he had lost his way. He found a small opening, or tunnel, which I had cut through the foliage in order to get a better view. Turning into that, he came a few steps towards the cage before he discovered it. Suddenly he stopped and squatted on the ground. He did not sit flat down. For a few seconds he was motionless. So was I. He slowly raised one arm till his hand was above his head, in which position he sat for a few moments. Then he moved his hand quickly forward, as if to motion at me. He did not drop his hand to the ground, but held it for a short time at an angle from his face. Then he slowly let it down till it reached the ground. During this time he kept his eyes fixed on me. At length he raised the other arm and seized hold of a strong bush, by which he slowly drew himself to a half-standing position. Thus he stood for a few seconds, with one hand resting on the ground. Suddenly he turned to one side, parted the bushes, and disappeared. He uttered no sound whatever. Another came within about thirty yards of my retreat. When he discovered me he stopped and stared in a perplexed manner. He turned away to retreat, but, after going a few feet, turned round and sat down on the ground. He remained in that attitude for more than half a minute; then he rose and retired in the direction from which he had come.

The finest specimen of which I ever had a view, and at the same time the best subject for study, was a large

female that came within a trifle more than three yards of me. A dog that belonged to one of the native villages had become attached to me and had found its way through the bush to my cage. He frequently came to visit me, and I was always glad to welcome him. One afternoon about three o'clock he came, and I let him into the cage for a while, to pass the usual greetings. I had a bone which I had saved from my last meal, and I threw this out to him in the bush a few feet away from the cage. He seized the bone and began to gnaw it where it lay. His body was in the opening of a rough path cut through the jungle near the cage, but his head was concealed under a clump of leaves. All at once I caught a glimpse of some moving object at the edge of the path on the opposite side of the cage. It was a huge female gorilla carrying a young one on her back.

When I first saw her she was not more than fifty feet away. She was creeping along the edge of the bushes and watching the dog. He was busy with the bone. Her tread was so stealthy that I could not hear the rustling of a leaf. She advanced a few feet, crouched under the edge of the bushes, and cautiously peeped at the dog. Again she advanced a little way, halted, crouched, and peeped. It was evident that her purpose was to attack the dog. Her approach was so wary as to leave no doubt of her dexterity in attacking a foe. Every movement was the embodiment of stealth. Her face wore a look of anxiety with a touch of ferocity. Her movements were quick but accurate, and her advance was not delayed by any indecision. The dog had not discovered her approach. The smell of the bone



GORILLA MOTHER WITH YOUNG

and the noise he was making with it prevented him from either smelling or hearing her. I could not warn him without alarming her. If he could have seen her before she made the attack, I should have left him to take his chances by flight or by battle. I should have been glad of an opportunity to witness such a combat and to study the actions of the belligerents, but I could not consent to see a friendly dog taken at such disadvantage. She was now rapidly covering the distance between them, and the dog had not yet discovered her.

When she reached a point within about ten feet of him I determined to break the silence. I cocked my rifle. The click of the trigger caught her attention. I think this was the first that she was aware of my presence. She instantly stopped, turned her face and body towards the cage, and sat down on the ground in front of it. She gave me such a look that I almost felt ashamed for having interfered. She sat for more than a minute staring at me as if she had been transfixed. There was no trace of anger or fear, but the look of surprise was on every feature. I could see her eyes move from my head to my feet. She scanned me as closely as if her purpose had been to purchase me. At length she glanced at the dog who was still gnawing the bone, then turned her head uneasily, as if to search for some way of escape. She then rose and retraced her steps with moderate haste. She did not run, although she lost no time. From time to time she glanced back to see that she was not pursued. She uttered no sound of any kind.

From the time this ape came in view until she departed was about four minutes, and during that time I was

afforded an opportunity of studying her in a way that no one else has ever been able to do. I watched every movement of her body, face, and eyes. Being in the cage, I sat with perfect composure and studied her without the fear of attack. With due respect for the temerity of men, I do not believe that any sane man could calmly sit and watch one of these huge beasts approach so near him without feeling a tremor of fear, unless he were protected as I was. Any man would either shoot or retreat, and he could not possibly study the subject with equanimity.

The temptation to shoot her was almost too great to resist, and the desire to capture her babe made it all the more so. But I refrained from firing my gun anywhere within a radius of half a mile or so of my cage, and the natives had agreed to the same thing. My purpose in doing so was to avoid frightening the apes away from the locality. I had been told by the native hunters that if I wounded one of the apes the others would leave the vicinity and perhaps not return for weeks. It is said that if you kill one the others do not notice it so much as if you merely wounded it. Although they seem to be conscious of the fact of the killing, and for the time depart, they will return within a short time.

I could have shot this one with perfect ease and safety. As she approached, her head and breast were towards me; just before she discovered me her left side was in plain view, and when she sat down her breast was perfectly exposed. I could have shot her in the heart, the breast, or the head. Her baby hung upon her back, with its arms embracing her neck and its feet caught under her arms.

The cunning little imp saw me long before the mother did, but it gave her no warning of danger. It lay with its cheek resting on the back of her head. Its black face looked as smooth and soft as velvet. Its big, brown eyes were looking straight at me, but it betrayed no sign of fear or even of concern. It really had a pleased expression and wore the nearest approach to a smile I have ever seen on the face of a gorilla. I believe that this is their method of carrying the young and have elsewhere assigned other reasons for this belief. In this case it is not a matter of belief, but one of knowledge, and everything that I have observed conspires to show that this is not an exception to the rule.

During my sojourn of nearly four months in the jungle, where, it was said, a greater number of gorillas could be found than in any other place in the basin of that lake, I saw a total of only twenty-two. I saw one other at a time while I was hunting in the forest. I caught only a glimpse of him, and should not even have done that had not the native guide discovered and pointed him out to me. I believe that no other white man has ever seen an equal number of these animals in a wild state, and it is certain that no other has ever seen them under such favorable conditions for study. I have compared notes with many white men along that part of the coast, but I have never found any reliable man who claims to have seen an equal number. All of them admit that my cage is the best possible means of seeing the apes. I know men who have lived in that part for years and who frequently hunt in the forest for days at a time, but never yet have seen a live gorilla.

I met one man on my last voyage who has lived on the edge of the gorilla country forty-nine years, making frequent journeys through the bush and along the water-courses in the interest of trade. This man told me himself that in all that time he had never seen a wild gorilla.

I would cite Mr. James A. Deemin as an expert woodsman and a cool, daring hunter. I have enjoyed several hunts with him. He had traveled, traded, and hunted through the gorilla country for more than thirteen years. He told me that with two exceptions he had never seen a wild gorilla. The first he ever saw was a young one, and he once saw a school of them at a distance. On this latter occasion he was in a canoe and under the cover of the bushes along the side of a river. Unobserved he came near them.

Another man, whose name I am at liberty to mention, is Mr. J. H. Drake of Liverpool. By those who know him Mr. Drake has never been suspected of lacking courage in the hunt or of being given to romance. Yet in many years on the coast he saw but one school of these apes, and that was the same one that Mr. Deemin saw when the two men were traveling together. Others could be cited who testify that it is a rare thing for the most expert woodsman ever to see one of these creatures, and many of the stories told by the casual traveler cannot be received at par. I do not mean to impeach the veracity of others, but the temptation to romance is too great for some people to resist. While we cannot prove the negative by direct evidence, we must be permitted to doubt whether or not these apes are so frequently met in the jungle as they are

alleged to be. I will give some reasons for being a sceptic on this subject.

Almost every yarn told by the novice is about the same in substance, and much the same in detail, as those related by others. It seems that most of them meet the same old gorilla, still beating his breast and screaming just as he did forty years ago. The number of gun-barrels that he is accused of having chewed up would make an arsenal sufficient to arm the volunteers. What becomes of all those that are attacked by this fierce monarch of the jungle? Not one of them ever gets killed, and not one of them ever kills the gorilla. Does he merely do this as a bluff and then recede from the attack? Or does he follow it up and seize his victim, tear him open, and drink his blood, as he is supposed to do? How does the victim escape? What becomes of the assailant? Who lives to tell the tale?

The gorilla has good ears, good eyes, and is a skillful bushman. One man walking through the jungle will make more noise than half a dozen gorillas make. The gorilla almost always sees and hears a man before he is seen or heard by him. He is shy and will not attack a man unless wounded or provoked to it. He is always on the alert for danger and rarely comes into the open parts of the bush except for food. He can conceal himself with more ease than a man can and has every advantage in making his escape. I do not believe that he will ever approach a man if he can evade him, but I quite believe that he will make a strong defense if surprised or attacked. I do not believe it possible for any one to see a great number of gorillas in

any length of time unless he goes to some one place and remains there, as I have done. Even then he must sometimes wait for days without a trace of one. Silence and patience alone will enable him to see them. When the gorilla sees a man, he retires as soon as he discovers the nature of the thing before him. He does not always flee in haste, as some other animals do, but is more deliberate and cool about it. He will retreat in good order and always starts in time, if possible, to escape without being observed. I trust that I may be pardoned for not being able to believe that every stranger who visits that country is attacked by a gorilla.

Many people labor under the popular delusion that they have seen a gorilla with some itinerant menagerie, and it may be cruel of me to undeceive them. Up to this time there has been but one gorilla landed alive in America. This one arrived in Boston in the autumn of 1897. It was a mere baby and lived only five days. It was exhibited to the public during only a part of two days. The many alleged gorillas offered by mendacious showmen are vile fakes, and the exhibitors should be dealt with as impostors.

I regret that I have been compelled to deny much that has been said, but I make no apology for having done so. In this work I have sought to place these apes before the reader as I have seen them in their native forests. I have not clothed them in fine raiment or invested them with glamour. But I trust that this contribution may be found worthy of the approval of all men who love nature and respect fidelity.

I have the vanity to believe that the methods of study which I have employed will be made the means of farther research by more able students than the writer. In addition to those apes that I have seen in a wild state, I have seen about ten in captivity. Two of those were my own. They were good subjects for study, and I made the best use of them during the time I had them.

While in the jungle I accomplished one thing, in which I feel a just sense of pride, and that was making a gorilla take a portrait of himself. This will interest the amateur in the art of snapshots, and I shall relate it.

I selected a place in the forest where I found some tracks of the animal along the edge of a dense thicket of batuna. Under cover of the foliage I set up two pairs of stakes which were crossed at the tops, and to them was lashed a short pole forming something like a sawbuck. To this was fastened the camera, to which had been attached a trigger made of bamboo splits. One end of a string was fastened to the trigger, and the other end carried under a yoke to a distance of eight feet from the lens. At this point were attached a fresh plantain stalk and a nice bunch of the red fruit of the batuna. Upon this point the camera was focused, the trigger was set, and it was left to await the gorilla. That afternoon I returned to find that something had taken the bait, broken the string, sprung the trigger, and snapped the camera. I developed the plate, but could find no image of anything except the leaves in front of it. I repeated the experiment, with similar results, but could not understand how anything could steal the bait and yet not be shown in the

picture. The third time I did this I was gratified to find the image of a gorilla, and also to discover the cause why the other experiments had not succeeded.

The deep shadows of the forest make it difficult to take a photograph without giving it a time exposure, and when the sun is under a cloud or on the wrong side of an object success is quite impossible. The leaves which were shown in the first two plates were only those which were most exposed to the light, and all the lower part of the picture was without detail. In the third trial it could be seen that the sun was shining at the instant of exposure. A part of the body of the gorilla was in the light, but most of it was in the shadow of the leaves above it. The left side of the head and face was quite distinct, so likewise were the left shoulder and arm. The hand and the bait could not have been distinguished except by their context. The right side of the head, the arm, and most of the body were lost in the view. The picture showed that the gorilla had taken the bait with his left hand, and that he was in a crouching posture at the moment.

While the photograph was very poor as a work of art, it was full of interest as an experiment. Although it did not result in getting a good picture, I did not regard the effort as a failure. It shows at least that such a thing is possible, and by careful efforts, often repeated, it could be made a means of obtaining some novel pictures. A little ingenuity would widen the scope of this device and make it possible to photograph birds, elephants, and everything else in the forest. When I return to that place on a like journey I shall carry the scheme into better effect.

CHAPTER XXIII

Other Apes — The Apes in History — Habitat — The Orangs — The Gibbon

IN the various records that constitute the history of these apes are found many novel and incoherent tales, but most of them appear to rest upon some basis of truth. In order to arrive at a more definite knowledge concerning them, we may review the data at our command.

In the annals of the world, the first record that alludes to these manlike apes is that of Hanno, who made a voyage from Carthage to the west coast of Africa, nearly five hundred years before the Christian era. He described an ape which was found in the locality about Sierra Leone. It is singular that the description which he gave of those apes should coincide so fully with the apes known at the present day ; but it is quite certain that the apes of which he gave an account were neither gorillas nor chimpanzees. There is nothing to show that either of these apes ever occupied that part of the world, or that any similar type has done so.

The ape described by Hanno was certainly not an anthropoid, but a large dog-faced monkey or baboon, technically called *cynocephalus*. These animals are found all along the north coast of the Gulf of Guinea, but there is no trustworthy evidence of any true ape living north of

Cameroon valley. The river that waters it empties into the sea about four degrees north of the equator. Here begins the first trace of the chimpanzee. As we pass along the windward coast, casual reports are current to the effect that gorillas and chimpanzees occupy the interior north of there; but when these reports are sifted down to solid facts, it turns out to be a big baboon or a monkey upon which the story rests. Its likeness to man, as described by Hanno, was doubtless the work of fancy, and the name *troglodytes* which he gave to it shows that he knew but little of its habits, or cared but little for the exactness of his statements.

The account given by Henry Battel, in 1590, contains a thread of truth woven into a web of fantasy. He must have heard the stories he relates, or seen some specimens along the coast north of the Congo. There are certain facts which point to this conclusion. The name *pongo* which he gave to one of them belongs to the Fiote tongue, which is spoken by the native tribes around Loango. Those people use the name, and it is commonly understood to be synonymous with the name *njina*, used by the tribes north of there. It is always applied to the gorilla. To me, however, it appears to coincide with the name *ntyii*, as used by the Esyira people for another ape, which is described in the chapter devoted to gorillas. It was from Loango that Dr. Falkenstein, in 1876, secured an ape under that name. It is singular that Baron Wurmb, in 1780, makes use of the name *pongo* for an orang. I have not been able to learn where he acquired this name, but it appears to be a native Fiote name for more than four

hundred years, and the history of their language is fairly well known.

The name *enjocko*, given by Battel to another ape, is beyond a doubt a corruption of the native name *ntyigo* (*ntcheego*), and this name belongs north of the Congo from Mayumba to Gaboon. He may have inferred that these apes occupied Angola, but there is not a vestige of proof that any ape exists in that part of Africa. Even the native tribes of that part have no indigenous name for either of these apes. Other parts of his account are erroneous, and while he may have believed that these apes "go in bodies to kill many natives that travel in the wood," and the natives may have told him such a thing, the apes do not practice such a habit. With all their sagacity, they have no idea of unity of action. If a band of them were attacked, they would no doubt act together in defense, but it is not to be believed that they ever preconcert any plan of attack. Neither do these apes ever assault an elephant. He is the one animal they hold in mortal dread. I have incidentally mentioned elsewhere the conduct of my two *kulus* on board the ship when they saw a young elephant. Chico, the big ape that has also been mentioned, was often vicious and stubborn. Whenever he refused to obey his keeper or became violent, an elephant was brought in sight of his cage. On seeing it he became as meek as a lamb and showed every sign of the most intense fear. Mr. Bailey himself told me of the dread both of his apes had of an elephant. Battel was also wrong in the mode he described of the mother carrying her young, and that of the apes in using sticks and clubs.

The ape known as *Mafuka*, which was exhibited in Dresden in 1875, was also brought from the Loango coast, and it is possible that this is the ape to which the native name *pongo* really belonged. This specimen in many respects conforms to the description of the *ntyii* given, but the idea suggested by certain writers that *Mafuka* was a cross between the gorilla and the chimpanzee is not, to my mind, a tenable supposition. It would be difficult to believe that two apes of different species in a wild state would cross, but to believe that two that belonged to different genera would do so is yet more illogical. I may state, however, that some of the Esyira people advance such a theory concerning the *ntyii*, but the belief is not general, and those best skilled in woodcraft regard them as distinct species.

To quote, in "pidjin" English, the exact version of their relationship, as it was given to me by my interpreter while in that country, may be of interest to the reader. I may remark, by way of explaining the nature of the "pidjin" English, that it is a literal translation of the native mode of thought into English words. The statement was: —

"*Ntyii* 'e one; *njina* 'e one; all two 'e one, one. *Ntyii* 'e one mudder; *njina* 'e one mudder; all two 'e one, one. *Ntyii* 'e one fader; *njina* 'e one fader. All two 'e one." By which the native means to say that the *ntyii* has one mother, and the *njina* has one mother, so that the two have two mothers, but both have one father, therefore they are half-brothers.

The other version given in denial of this statement is as follows: —

"*Ntyii* 'e one mudder; *njina*, 'e one mudder. 'E one, one. *Ntyii* 'e one fader; *njina* 'e one fader. 'E one, one. All two 'e one, one. *Ntyii* 'e one mudder; *njina* 'e one mudder. All two 'e one, one. 'E brudder. *Ntyii* 'im fader; *njina* 'im 'e brudder. All two 'e one, one." The translation is that the *ntyii* has a mother, and the *njina* has a mother, which are not the same, but are sisters. The *ntyii* has a father, and the *njina* has a father, which are not the same, but are brothers; and therefore the two apes are only cousins, which in the native esteem is a remote degree of kinship.

The ape described by Lopez certainly belonged to the territory north of the Congo, which coast he explored, and gave his name to a cape about forty miles south of the equator. It still bears the name Cape Lopez. However, it is probable that at that time most of the low country now occupied by these apes was covered with water; that the lakes of that region were then all embraced in one great estuary, reaching from Ferran Vaz to Nazavine Bay, and extending eastward to the foothills below Lamberene. There is abundant evidence to show that such a state has once existed there, but it is not probable that these apes have ever changed their latitude.

The name *soko* appears to be a local name for the ordinary type of chimpanzee found throughout the whole range of their domain, and known in other parts by other names. In Malimbu the name *kulu* appears to apply to the same species, while in the southwestern part of their habitat that name, coupled with the verb *kamba*, is confined strictly to the other type. Along the northern borders of the

PLAIN AND EDGE OF FOREST IN THE COUNTRY OF THE APES

district to which that species belongs, but where he is very seldom found and little known to the natives, he is called by the Nkami tribe *kanga ntyigo*, to distinguish him from the common variety, to which the latter name only is applied.

The etymology of the name *kanga* as applied to this ape is rather obscure. In common use it is a verb, with the normal meaning "to parch" or "fry," and hence the secondary meaning "to prepare." Since this ape is said to be of a higher order of the race, the term is used to signify that he is "better prepared" than the other; that is to say, he is prepared to think and talk in a better manner. But another history of this word appears to be more probable. The ape to which the name is applied lives between the Nkami country and the Congo. The name is possibly a perversion of *kongo* and implies the kind of *ntyigo* that lives towards the great river of that name. The etymology of African names is always difficult because there is no record of them; but many of them can be traced out with great precision, and some of them are unique.

The name *M'Bouve*, as given by Du Chaillu, I have not been able to identify. In one part of the country I was told that the word meant the "chief" or head of a family. In another part it was said to mean something like an advocate or champion, and was applied to only one ape in a family group. The Rev. A. C. Goode, a missionary who recently died near Batanga, was stationed for twelve years at Gaboon. During that time he traveled all through the Ogowé and Gaboon valleys. He was familiar with the languages of that part, and he explained the word in about the same way.

Whatever may be said concerning the veracity of Paul du Chaillu, there is one thing that must be said to his credit. He gave to the world more knowledge of these apes than all other men had ever done before; and while he may have given a touch of color to many incidents, and related some native yarns, he told a vast amount of valuable truth; and I can forgive him for whatever he may have misstated, except one thing; that is, the starting of that story about gorillas chewing up gun-barrels. It has been a staple yarn, in stock ever since, and the instant you ask a native any question about the habits of the gorilla he begins with a stereotype edition of that improbable story.

In view of the fact that I have made careful and methodic efforts to determine the exact boundary of the habitat and the real habits of these two apes, I feel at liberty to speak with an air of authority. I have acquired my knowledge on the subject by going to their own country and living in their own jungle, and I have thus obtained their secrets from first-hand. With due respect to those who write books and speak freely upon subjects of which they know but little, I beg leave to suggest that if the authors had gone into the jungle and lived among those animals, instead of consulting others who know less than themselves about the subject, many of them would have written in a very different strain. I do not mean this as a rebuke to any one, but seeing the same old stories repeated year after year, and knowing that there is no truth in them, I feel it incumbent as a duty to challenge them.

I believe that in the future it will be shown that there are two types of gorilla as distinct from each other as the two chimpanzees are. This second variety of gorilla will be found between the third and fifth parallels south and east of the delta district, but west of the Congo. I believe it was represented in the ape *Mafuka*.

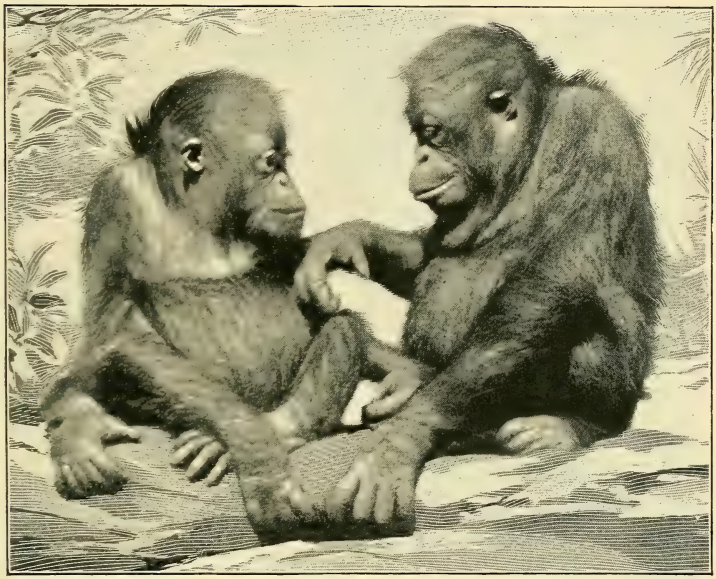
My researches among the apes have been confined chiefly to the two kinds heretofore described, but I have seen and studied in a superficial way the orang and the gibbon. I am not prepared as yet to discuss the habits of those two apes, but, as they form a part of the group of anthropoids, we cannot dismiss them without honorable mention.

The orang-outang, as he is commonly called, is known to zoölogy by the first of these terms alone. He is a native of Borneo and Sumatra, and opinions differ as to whether there are two species or only one.

The general plan of the skeleton of the orang is very much the same as that of the other apes. The chief points of difference are that it has one bone more in the wrist and one joint less in the spinal column than is found in man. He has thirteen pairs of ribs, which appear to be more constant in their number than in man. His arms are longer, and his legs shorter, in proportion to his body than the other two apes. The type of the skull is peculiar and combines to a certain extent more human-like form in one part with a more beast-like form in another. The usual height of an adult male is about fifty-one inches.

I have never had an opportunity of studying this ape in a wild state and have had access to only a few of them

in captivity. All of these were young, and most of them were inferior specimens. He is the most stupid and obtuse of the four great apes. Except for his skeleton alone, he would be assigned a place below the gibbon, for



Young Orangs
(From a Photograph.)

in point of speech and mental caliber he is far inferior. Perhaps the best authorities upon the habits of this ape in a wild state are Messrs. W. T. Hornaday and Alfred R. Wallace.

The smallest and last in order of the anthropoid apes is the gibbon. He is much smaller in size, greater in variety,

and more active than any other of the group. His habitat is in the southeast of Asia; its outline is vaguely defined, but it includes the Malay Peninsula and many of the contiguous islands east and south of it.

In model and texture the skeleton of the gibbon is the most delicate and graceful of all the apes, and in this respect is superior to that of man. He is the only one of the four apes that can walk in an erect position. In doing this the gibbon is awkward and often uses his arms to balance himself. Sometimes he touches his hands to the ground. At other times he raises them above his head or extends them on either side. The length of them is such that he can touch the fingers to the ground while the body is nearly or quite erect. In the spinal column he has two, and sometimes three, sections more than man. His digits are very much longer, but his legs are nearly the same length, in proportion to his body, as those of man. He has fourteen pairs of ribs.

The gibbon is the most active and probably the most intelligent of all apes. He is more arboreal in habit than any other. Many stories are told of his agility in climbing, and leaping from limb to limb. One authentic report credits one of these apes with leaping a distance of forty-two feet, from the limb of one tree to that of another. Perhaps a better term is to call it swinging, rather than leaping, as these flights are performed chiefly by the arms. Another account is that a gibbon swinging by one hand propelled himself a horizontal distance of eighteen feet through the air, seized a bird in flight, and alighted safely upon another limb, with his prey in hand.

There are several known species of this ape. The largest of these is about three feet high; but the usual height is not more than thirty inches. The voice of one species is remarkable for its strength, scope, and quality, being in these regards superior to that of all other apes. Most of the members of this genus are endowed with better vocal qualities than other animals.

This ends the list of the manlike apes. Next in order after them come the monkeys, then the baboons, and, last, the lemurs.

The descent, as we have elsewhere observed, from the highest ape to the lowest monkey presents one unbroken scale of imbricating planes. We have seen in what degree man is related to the higher apes. From thence we may discern in what degree his physical nature is the same as that of all the order to which he belongs. No matter in what respect man may differ in his mental and moral nature, his likeness to them should at least restrain his pride, evoke his sympathy, and cause him to share the bounty of his benevolence. Let him realize in full extent that he is one in nature with the rest of animate creatures, and they will receive the benign influence of his dignity without impairing it, while he will elevate himself by having given it.

CHAPTER XXIV

The Treatment of Apes in Captivity — Temperature — Building — Food — Occupation

IN conclusion I deem it in order to offer a few remarks with regard to the causes of death among these apes, and to say something regarding the treatment of animals in captivity. We know so little and assume so much concerning them that we often violate the very laws which we are trying to enforce.

We have already noticed the fact that the gorilla is confined by nature to a low, humid region, reeking with miasma and the effluvia of decaying vegetation. The atmosphere in which he thrives is one in which human life can hardly exist. We know in part why man cannot live in such an atmosphere and under such conditions, but we cannot say with certainty why the ape does do so. It would seem that the very element that is fatal to man gives strength and vitality to the gorilla. We know that all forms of animal life are not affected in the same way by the same causes; and while it may be said in round numbers that what is good for man is good for apes, that is not a fact.

The human race is the most widely distributed of any genus of mammals, and, as a race, it can undergo greater extremes of change in climate, food, or condition than any

other kind of animal. Man's migratory habits, both inherent and acquired, have fitted him for a life of vicissitudes, and such a life inures him, as an individual, to all extremes. On the other hand, the gorilla, as a genus, is confined to a small habitat, which is uniform in climate, products, and topography. Having been so restricted to these conditions he is unfitted for any radical change, and when such is forced upon him the result must always be to his injury.

In certain parts of the American tropics there is found a rich gray moss growing in great profusion in these localities and on certain kinds of trees. It is not confined to any special level, but thrives best on low elevations. Under favorable conditions it grows at altitudes far above the surrounding swamps. Its character and quantity, however, are measured by the altitude at which it grows. It is an aërial plant, and it may be detached from the boughs of one tree and transplanted upon those of another. It may be taken with safety to a great distance, so long as an atmosphere is supplied to it that is suited to its nature, but when removed from its normal conditions and placed in a purer air it begins to languish and soon dies. If returned in time, however, to its former place or one of like character, it will revive and continue to grow.

What element this plant extracts from the impure air is unknown. It cannot be carbonic acid gas, which is the chief food of plants, nor can it be any form of nitrogen. It is well known that the plant cannot long survive in a pure atmosphere. Whatever the ingredient extracted may be, it is certain that it is one that is deadly to human life

and one that other plants refuse. Moisture and heat alone will not account for it. We have another striking instance in the eucalyptus, which lives upon the poison of the air around it. There are many other such cases in vegetable life; and while the animal is a higher organism than the plant, there are certain laws of life that obtain in both kingdoms and involve the same principles.

Between the case of the gorilla and that of the plant there is some analogy. It may not be the same element that sustains them both, but it is possible that the very microbes which germinate disease and prove fatal to man sustain the life of the ape in the prime of health. The poison which destroys life in man preserves it in the ape.

The chimpanzee is distributed over a much greater range than the gorilla and is capable of undergoing a much greater degree of change in food and temperature. The history of these apes in captivity shows that in that state the chimpanzee lives much the longer and requires much less care. From my own observation I assert that all these apes can undergo a greater range of temperature than of humidity. The latter appears to be one of the essential things to the life of a gorilla. One fatal mistake made in treating him is furnishing him with a dry, warm atmosphere and depriving him of the poison contained in the malarious air in which he naturally spends his life. Both of these apes need humidity. In a dry air the chimpanzee will live longer than the gorilla, but neither of them can long survive it; and it would appear that a salt atmosphere is best for the gorilla.

I believe that one of these apes could be kept in good condition for any length of time if he were supplied with a normal humidity in an atmosphere laden with miasma and allowed to vary in its temperature. A constant degree of heat is not good for any animal. There is no place in all the earth where nature sustains a uniform degree of heat. We need not go to either extreme, but a change is requisite to bring into play all the organs of the body.

The treatment which I would recommend for the care of apes is to build them a house entirely apart from that of other animals. It should be eighteen or twenty feet wide by thirty-five or forty feet long, and at least fifteen feet high. It should have no floor except earth, and that should be of sandy loam or vegetable earth. In one end of this building there should be a pool of water twelve or fifteen feet in diameter; and, imbedded in mold under the water, there should be a steam coil to regulate the temperature as may be desired. In this pool should be grown a dense crop of water plants such as are found in the marshes of the country in which the gorilla lives. This pool should not be cleaned out nor the water changed; but the plants should be allowed to grow and decay in a natural way. Neither the pool nor the house should be kept at a uniform heat, but the temperature should be allowed to vary from 60° to 90°.

In addition to the things above mentioned, the place should be provided with the means of giving it a spray of tepid water, which should be turned on once or twice a day and allowed to continue for at least an hour at a time. The water for this purpose should be taken from the pool,

but should never be warmer than the usual temperature of tropical rain. The animal should not be required to take a bath in this way, but should be left to his own choice about it.

The house should contain a thin partition that could be removed at will, and the end of the building farthest from the pool should be occupied by a strong tree, either dead or alive, to afford the inmates proper exercise. The south side of the house should be of glass, and at least half of the top should be of the same. These parts should be provided with heavy canvas curtains, to be drawn over them so as to adjust or regulate the sunlight. In the summer time the building should be kept quite open, so as to admit the air and the rain. The rule that strangers or visitors should not annoy or tease them should be enforced without respect to person, time, or rank. No visitor should be allowed on any terms to give them any kind of food. The reasons for these precautions are obvious to any one familiar with the keeping of animals; but in the case of the gorilla their observance cannot be waived with impunity.

The ape does not need to be pampered. On the contrary, he should be permitted to rough it. Half of the gorillas that have ever been in captivity have died from overnursing. By nature they are strong and robust if the proper conditions exist; but when these are changed they become frail and tender creatures. They should not be restricted to a vegetable diet nor limited to a few articles of food, but should be allowed to select such things as they prefer to eat. I have grave doubts as to the wisdom of

limiting the quantity. One mistake is often committed in the treatment of animals, and that is to continue the same diet at all times and to limit that to one or two items. It may be observed that the higher the form of organism the more diverse the taste becomes. Very hardy animals or those of low forms may be restricted to one kind of staple food. The higher form demands a change.

One thing above all others that I would inhibit is the use of straw of any kind in the cage, for beds or for any other purpose. If it be desired to furnish them with such a comfort, nothing should ever be used but dead leaves, if they can be supplied. In their absence a canvas mattress or wire matting should be used. There are certain kinds of dust given off by the dry straw of all cereal plants. This is deleterious to the health of man, but vastly more so to these apes. It is taken into the lungs and through them acts upon other parts of the body by suppressing the circulation and respiration. No matter how clean the straw may be, the effect will be the same in the end. Hay is less harmful than straw, but even the use of hay should not be permitted.

Another thing which is necessary is to entertain or amuse the apes in some way, otherwise they become despondent and gloomy. It is believed by those who are familiar with these creatures that loneliness or solitude is a fruitful cause of death. This is especially true of the gorilla.

Another important fact, little known, is that tobacco smoke is usually fatal to a gorilla. Every native hunter

that I met in Africa testifies that this simple thing will kill any gorilla in the forest if he is subjected to the fumes for a sufficient time. I have reason to believe that this is true. It may not invariably prove fatal, but it will be so in many instances. The chimpanzee is not so much affected by it, although he dislikes it. The gorilla detests it and shows at all times his strong aversion to it. I have no doubt that this is one of the reasons why these apes die on board the ships by which they are brought from Africa.

Both of these apes are possessed, in a degree, of savage and resentful instincts; but these are much stronger in the gorilla than in the chimpanzee. The gorilla, therefore, requires firm and consistent treatment. This can be used without severity or cruelty, but the intellect of the gorilla must not be underrated. He studies with a keen perception the motives and intentions of man, and is seldom mistaken in his interpretation of them. He often manifests a violent dislike for certain persons, and when this is discovered to be the case, the object of his dislike should not be permitted in his presence, for the result is to enrage the ape and excite his nervous nature. When he becomes sullen or obstinate, he should not be coaxed or indulged, nor yet used with harshness. He should either be left alone for a time or be diverted by a change of treatment.

INDEX

INDEX

"Aaron"
his intelligent expression, 144, 146, 147
his capture, 145
on the journey, 147, 148
his tricks, 148
" one aversion, 148, 149
" sympathy for Moses, 149–152
realization of death, 151, 152
loses his mate, 170
his illness and death, 172–174
"Aaron" with "Elisheba"
acts as a protector, 156
his reliance on human aid, 157, 158–159
driving the cow, 158, 159
we start for Liverpool, 159
the bogie on the steamer, 159
solicitude of the apes, 159–160
their ingenuity, 161
the ape in the mirror, 161–162
Aaron's jealousy, 162–165
the rivals, 163–165
arrival at Liverpool, 167, 168
Elisheba's illness, 168
Aaron again becomes nurse, 170
Abstract ideas in simians, Lack of, 20, 36
Affection in animals not mere instinct, 58–59, 173
Age of maturity in apes, 98, 191, 192
Amusement (of captives)
captives should have, 55–56, 283
means of, 20–21, 33, 35, 54–56
Angola, 268
Anthropoid or manlike apes (see also *Chimpanzee*, *Gorilla*, *Gibbon*, *Orang*, and references under *Chimpanzee captives*)
the group, 3
superior intelligence, 35, 60
Apes (see also *Simians* and references under *Anthropoid apes*)
resemblance to man, 2
described, 3, 92–98, 223 ff.
anthropoid or manlike group, 3
skeleton a duplicate of man's, 4, 7
superior intelligence of anthropoid, 35, 60
travelers' stories untrue, 71–72, 235–236, 266 ff.
do not act in concert, 268
Approval, Apes' love of, 197, 203
Arboreal habit, The, 96–97, 224–225, 245

Baboon, The, 3, 14, 15, 196–197, 224, 266, 277
relative plane, 3, 277

Bailey, Mr. James A., New York City
his valuable apes, 190–191
corroborative testimony, 268
"Banquo," 28–29
Battel, Henry (1590), 267, 268
Batuna (plant), 77, 245
Bellevue Gardens, Manchester, England (see also *Consul II*)
Consul II, 193
a pugnacious ape, 198–200
chimpanzee and orang, 200
Borneo, 274
Buffalo (N. Y.) Museum, Specimens in, 104

Cage in the jungle, The
idea first conceived, 60
exceptional opportunities it afforded, 60, 71, 260
its construction, 62–64
its furniture, 64–66
date of occupancy, 71
length of occupancy, 71
my chimpanzee companion, 71 (see also *Moses*)
the native boy, 71, 120, 121, 125, 148–149
program for the day, 73 ff.
my menu, 73, 77, 79, 84
wild visitors, 75 ff., 186–190, 252–260
the tornado, 79 ff.
Cameroon (valley), 85, 213, 215, 267
Capuchin monkey, The (see also under *Monkey*), 18–19, 28, 29, 38, 39, 42, 52
Care of simian captives
amusement of, 20–21, 33, 35, 54–56, 283
Care of simian captives (*cont.*)
their short lives, 146, 200, 201
effects of confinement, 231
cannot live in pure air, 280, 281
condition compared to a certain tropical moss, 279–280
humidity essential, 280–282
diet, 282–283
dust of straw injurious, 283
tobacco fatal to the gorilla, 283–284
Catarrhini, 3
"Caucasian of monkeys, The," 35
Cebus monkey, The (see also under *Monkey*)
brown species, 17, 24, 42
experiments with, 17, 18
superior intelligence, 35
white-faced species, 42
Charla (lake), 25
Charleston, S. C., Experiments at, 24 ff.
Cherry, Mr. William S., African traveler, 212
Chicago Gardens, Experiments at, 17, 29
"Chico"
his unusual size, 190
" scream, 241
" fear of an elephant, 268
Chi Loango (river), 211, 218
Chimpanzee, The (see also *Kulukamba*, *Ntyigo*, and references under *Chimpanzee captives*)
order of intelligence, 4, 60, 85, 99, 105–106
perception of number, 34
resemblance to man (see also *Skeleton*), 60–62, 92

Chimpanzee, The (*cont.*)
in native haunts, 70, 71, 186–190
habitat, 85–87, 280
derivation and meaning of name, 86
two species, 86 ff.
described in detail, 92–98, 188
position in sleep, 96
longevity, 98
age of maturity, 98, 191, 192
breeding season, 98–99
social traits and government, 99–105
reasoning power and mental status, 105, 116, 206
does not bear captivity well, 146
pulmonary trouble common, 146
maladies resemble man's, 186
seen from the cage, 186–190
climate of America favorable, 200–201
mode of attack, 237
scream and beating sound, 240–242
disposition, 250, 284
Chimpanzees, Speech of
extent of vocabulary, 108, 115, 136
number of words interpreted, 108, 115
pitch of voice, 108, 109, 111, 112, 116
vocal organs, 108–110
phonetic symbols invented by author, 109–113
method of producing sounds, 110–111
Chimpanzees, Speech of (*cont.*)
character and meaning of sounds, 112–115, 123, 125, 130, 135–137
quality of voice, 113
use of gestures, 114–115
possibility of development, 139
resemblance to human speech, 116
constant meanings of sounds, 136, 137
Chimpanzee captives, Some (see *Aaron; Elisheba; Sailor's pet; Village pet; Gaboon, captives at; Izanga; Chico; Johanna; Consul II; Clever kulu; Five young kulus; Sally*)
Cincinnati Zoölogical Garden, Experiments at, 14, 28, 200, 241
Classification of simians, 2–4
Clever kulu, A
her color, 202
facial expression, 203, 206
love of approval, 203, 204
always in mischief, 204
unties complicated knots, 204–206
evidence of reasoning power, 206
Color, Simians' perception of, 30–32, 35, 36, 139
Concrete ideas, Simians can express only, 36
Congo (river), 66, 85, 191, 209, 211, 212, 216, 218, 241, 267, 268, 270, 272
Constant meanings of sounds in simian speech, 15, 18, 23, 135–137

"Consul II"
his remarkable sagacity, 193
rides a "bike," 193
smokes a pipe, 193–195
draws with chalk or pencil, 195, 196
distinguishes three letters, 196
love of teasing, 196–197
aversion to being clothed, 197
loves approval, 197
attempts at burglary, 198
his keeper's zeal, 198
Cranio-facial angles
of man, 8
" apes, 9
" monkeys, 9
" reptiles, 10
Cross, Dr., Liverpool, England
guardian of Aaron and Elisheba, 168, 172
Cruelty
unnecessary in hunting, 146
inherent in natives, 157, 184–185
Crystal Mountains, 211, 214
Cynocephalus, 266

"Darwin"
learns Puck's sound for "food," 43
Deaf-mutes, Method of teaching
applied to simian speech, 110
Death, Apes' realization of, 151, 152, 170, 259
Deemin, Mr. James, English trader, 223, 261
Descriptions of simians
of monkeys, 3, 224
" chimpanzee, 92–98, 224
" gorilla, 223 ff.
Development of "calf" a means of comparison, 227
Dexterity and ingenuity
of apes, 122, 126, 129, 130, 132, 161, 184, 193–198, 204–206
of monkeys, 56–57
Dialects (see *types* under *Monkeys, Speech of*)
Dimension, Simians' perception of, 30, 36
"Dodo"
Nemo's apologetic speech, 47
her appeal to her keeper, 48–50
Drake, Mr. J. H., African traveler, 261
Drum, The (see *Kanjo*)
Du Chaillu, Paul, African traveler, 214, 272, 273

Early reports of apes (see *Ford, Savage, Wilson, Walker, Hanno, Battel, Du Chaillu*)
"Elisheba" (see also *Aaron with Elisheba*)
where captured, 154
her shrewish temper, 154–156
her selfishness and perversity, 155–156
her champion and slave, 156, 162–165
a suitor rebuffed, 163–165
submissive only from policy, 166
her illness and death, 168–171
Eloquence of monkeys' speech, 22, 47–50
Emotions, Simians display human
sympathy, 149–152, 170–171
aversion, 26, 148–149
sorrow, 50, 152, 170

Emotions (*cont.*)
jealousy, 46, 125, 162–165, 186
contempt, 203, 206, 250
affection, 58–59, 134–135, 173, 174
Enjocko, 268
Enumeration (see *Number, Perception of*)
Esyira (tribe and country), 140, 144, 145, 218, 228, 267, 269
Ethics, Monkeys' code of, 30
Etymology of native names, 232, 272
Evolution, 36
Expression (see also *Facial expression*)
defined, 13
speech a means of, 13
animals' limit of, 13, 23

Facial expression of simians, 1, 16, 46, 47, 126, 146–147, 150, 162, 170, 182, 197, 202–204, 206, 207, 229
Falkenstein, Dr., 267
Ferocity of apes exaggerated, 229, 235–236
Ferran Vaz (lake), 66, 144, 149, 219, 228, 270
Fiote (tribe and language), 86, 267
Five young kulus, 207–210
Food
of chimpanzee, 106–107, 128–129, 132
of gorilla, 245–246
Ford, Dr., African traveler, 214, 217
Form, Simians' perception of, 30, 139, 196
Fort Gorilla, 71

Gaboon (town and river), 66, 153, 155, 182, 211, 214–217, 268, 272
Gaboon, Some captives at, 182 ff.
their table manners, 182–184
their love of beer, 183–184
their dexterity, 184
maladies resemble man's, 186
Gibbon, The
order of intelligence, 4
arboreal habit, 96, 276
size and activity, 275–276
skeleton, 276
can stand erect, 276
wonderful leaping power, 276
several known species, 277
vocal qualities, 277
Glave, E. J., African traveler, 241
Goode, Rev. A. C., late missionary at Batanga, 272
Gorilla, The
order of intelligence, 4, 211, 232
resemblance to man, 60
in native haunts, 70, 71
seen from the cage, 71, 77–78, 186, 252–260
his scream and beating sound, 84, 109, 237–242
arboreal habit, 96–97, 224–225, 245
nomadic, 97, 233
habitat, 211 ff., 273, 278–279
early reports of (see references under *Early reports*)
skeleton, 218–223
described in detail, 223 ff.
cannot walk erect, 225
the "calf" as means of comparison, 227
species, 228, 274

Gorilla, The (*cont.*)
compared with other apes and with man, 228–231
social traits and government, 231 ff.
derivation of name, 232
in council, 234
ferocity exaggerated, 235–236, 262, 273
mode of attack, 236–237
sounds wrongly attributed to, 109, 240–242
method of carrying young, 242, 259
disposition, 242, 250–251, 284
food, 245–246, 282–283
stealthiness, 253, 262
calling sound, 254
difficult to find, 260–263
only one ever brought to America, 263
a wild gorilla takes his own photograph, 264–265
care in captivity, 278 ff.
Great forest, The, 68
Guinea, Gulf of, 85, 266

Habitat
of gorilla, 211 ff., 273, 278–279
of chimpanzee, 85–87, 280
of orang, 274
of gibbon, 276
Handmann, Mr. Otto, German consul at Gaboon, 182
Hanno, 500 B.C., earliest mention of the ape, 266–267
Harris, Captain, African traveler, 217
Harvard Medical School Collection, 6
Hornaday, W. T., authority on orang, 275
Human faculties, embryo of all, exists in simians, 37

Ikomba njina, 232, 234, 235
Inenga (lake), 218
Ingenuity of simians (see *Dexterity*)
Izanga (lake), 184, 212, 223
an unhappy captive at, 184–185
an act of mercy, 185

"Jack," 25
"Jennie," 27
"Johanna"
her value for scientific use, 190, 192
probable age, 191
size, 191
intellectual plane, 192
"Jokes" 24 ff.
his fright, 24
the reconciliation, 26
Journeys in the jungle
to the chimpanzee country, 66
a five days' journey on foot, 148
to the coast, 153
Jungle, the African
described, 66–70, 153
daily life in, 73 ff.
the quiet hour, 77
a tornado, 79 ff.

Kabinda (town), 191
Kanga ntyigo
etymology of the name, 272
Kanjo, The, 102–104
the drum, 104, 241
Keller, Helen
with Nellie, 52–53
Kisanga (valley and river), 212
Komo (river, also name of gunboat), 153, 213, 217
Kongo, 272
Kulu-kamba (see also under *Chimpanzee*, and references under *Chimpanzee captives*)
its habitat, 87
described and compared with *ntyigo*, 87–91
Moses' successor, 144
highest type of all apes, 202, 210
name applied to different types, 270

Lamberene (town), 270
Lemur, 2, 224
relative plane, 2, 277
Loango (valley), 192, 211, 267, 269
Longevity of chimpanzee, 98
Lopez, African explorer, 270
Lopez, Cape, 153, 270

Mafuka, 269, 274
Maladies of simians
pulmonary trouble common, 146
resemble man's, 186
Malay Peninsula, 276
Mandrill, The, 14
Mayumba (town), 215, 216, 268
M'Bouve, 272
"McGinty"
his jealousy, 45, 46
Meanings of certain sounds in simian speech (see also under *Monkeys, Speech of*, and *Chimpanzees, Speech of*)
sound meaning "food," 19, 28, 29, 43, 112–113
sound meaning "drink," 19, 28, 29
sound meaning "warning," 14, 20, 27, 113
sound meaning "alarm," 24, 27, 113
sound meaning "friendship," 113
sound meaning "good," 160, 181
calling sound, 112–113, 136
Mental power and status of simians (see also under *Ape*, *Chimpanzee*, *Monkey*, *Gorilla*, "*Aaron*," "*Moses*," etc.)
compared to man, 105
compared to the dog, 116
Menu, My daily, 73, 77, 79, 84
Mesial crest (see *Gorilla, Skeleton of*)
"Mickie"
the boss of the school, 45–46
his tricks, 46
Middle forest, The, 68
Mirror, Experiments with, 40–41, 161–162
Mode of attack
of chimpanzee, 237
of gorilla, 236–237
Moiro, 217
Monkey, The (see also *Simians*)
human appearance, 1
relative plane, 2, 277

Monkey, The (*cont.*)
relationship to man, 2, 277
all simians not monkeys, 2–3
described, 3, 224
old world and new world, 3
cranio-facial angles, 9
Cebus species (see *Cebus*)
Capuchin species (see *Capuchin*)
perception of sound, color, form, dimension, quality, number, music, etc., 30–37
code of ethics, 30
Rhesus species (see *Rhesus*)
difference in traits and tastes, 35
express emotion, 50
affection not mere instinct, 58–59
Monkeys, Laughter of, 38, 54–55
Monkeys, Speech of
study of, 14 ff.
poor success of first efforts, 15
sound meaning "alarm" or "warning," 14, 20, 24, 27
phonograph first used, 16–18
sounds have constant meanings, 15, 18, 23
number of sounds interpreted, 18
sounds described, 19–20
speech monophrastic and monophonetic, 19, 44
pitch of voice, 20, 28, 50
resemblance to human speech, 20, 22–23
each species has its own speech, 23, 44
sign of surrender, 25 ff.
sound meaning "food," 19, 28, 29
sound meaning "drink," 19, 28, 29
Monkeys (*cont.*)
musical quality of voices, 19, 25, 45, 47, 50, 53, 57
eloquence, 22, 47–50
types of speech and inflections, 23, 42, 60
"Moses"
my sole companion in the cage, 71
his breakfast, 73
his amusements, 73, 120, 122–124
his siesta, 77, 124
position in sleep, 96
learns a word of human speech, 115–116, 137–138
his capture, 117–118
his moral training, 118, 120–121, 130–132
his tricks, 120–121, 123–124, 131
dexterity and ingenuity, 122, 126, 129–130, 132–133
reading the newspaper, 123
his jealousy and temper, 125, 186
our walks in the jungle, 125
understood rights of possession, 125, 128
preferences in food, 128, 129, 132
meaning of sounds, 123, 125, 135–137
his quick vision, 125
a severe lesson, 131–132
reasoning power, 133
his devotion, 134–135
perception of form, color, music, etc., 139
he signs a legal document, 139–140
last illness, 140–142, 149–151

"Moses" (*cont.*)
his chimpanzee nurse, 149–152
his death, 142, 151, 152
his claims to fame, 143
Mpongwe, 86
Music, Simians' perception of, 35–36

Native explanation of relationships, 269–270
Native reports unreliable, 215, 231
Nazavine (bay), 270
"Nellie"
her love of companionship, 20, 22
warns me of danger, 21 ff.
her perception of sound, 22
with Helen Keller, 52–53
her ingenuity, 56–57
"Nemo"
his diplomacy, 47
his abject apology, 47–48
Nenge Nenge (town), 214
New world monkeys, 3
their superior intelligence, 35
New York Zoölogical Gardens, Experiments at, 45–51
Nguni (river), 154, 211, 213, 218
"Nigger," 45, 51
Njina, 228, 267, 269, 270
Njole (town), 213
Nkami (tribe, lake, and river), 66, 144, 212, 218, 272
Noogo (river), 144
Nose a distinguishing feature, The, 3
Ntcheego, 268
Ntyigo (see also under *Chimpanzee*)
its habitat, 87
described, 87–90
Ntyigo (*cont.*)
compared with *kula-kamba*, 90–91
distinguished from *ntyii*, 228
Ntyii, 223, 228, 267, 269–270
Ntyi-ne-nye-ni (village), 144
Number, Perception of
by simians, 32–34, 36
by birds, 34

Ogowé (river, delta, and basin), 66, 117, 202, 211, 213, 214, 215, 217, 218, 223, 272
Old world monkeys, 3
Orang, The
order of intelligence, 4
arboreal habit, 97
a captive at Bellevue, 200
compared, 274, 275
Orungu (tribe), 215
"Othello"
place of capture, 221
absence of humor, 244
illness and death, 247–249
with Moses, 249, 250
his speech sounds, 251
Owen, Sir Richard, writer on Africa, 215

Parrot Island, 214
Paternal instinct in animals, 100
"Pedro"
his troubles, 38
appreciation of kindness, 38
recording his sounds, 38, 39
his tale of woe, 39, 41
speech repeated to Puck, 39–41

Philadelphia Museum of Zoölogy, Specimens at, 217
Phonograph as a means of recording speech of monkeys, 15 ff.
first experiments, 16 ff.
behavior of monkeys on hearing, 16–18
speech and reply recorded, 18
Pedro's speech recorded, 38
experiment with Puck, 39–41
Pitch of voice
in monkeys, 20, 28
in apes, 108, 109, 111–112
Platarrhini, 3
Pongo, 267, 269
Program, A day's, 73 ff.
"Puck," his perplexity on hearing phonograph, 39–41

Quality, Simians' perception of, 30
Quantity, Simians' perception of, 32

Reasoning power in simians, Evidences of, 16–18, 33–34, 36, 37, 105, 133, 161, 206
Records of speech sounds (see *Phonograph*)
Rembo (river), 144, 218
Resemblances between simians and man
in body, 1, 2, 4–8, 60, 92, 186, 277
in speech, 20, 22–23, 116
in affections, 58–59, 173, 174
Rhesus monkey, 32
Romanes, Professor
experiments with chimpanzee, 34
experiments with "Sally," 241

Sacrum (see *Skeleton*)
Sagittal ridge (see *Gorilla*, *Skeleton of*)
Sailor's pet, A
his suit rejected, 163–165
"Sally," 241
"Sally Jones," 244
Savage, Dr., African traveler, 213, 214, 216
Scream of gorilla and chimpanzee, 84, 109, 237–242
Sette Kama (town), 144, 212
Sheldon, Mrs. M. French, African traveler, 25
Sierra Leone, 266
Simians (see *Apes*, *Monkeys*, etc.)
wide range of types, 2
different forms described, 3
two grand divisions, how distinguished, 3
Simian speech (see *Monkeys*, *Speech of*, and *Chimpanzees*, *Speech of*)
Size of apes, 96, 190, 191, 221, 230
Skeleton, The
as basis of comparison, 4
chief point of difference, 4
sacrum, peculiarities of, 4–6, 8
vertebræ, number of, 5–6
causes of difference in sacrum and vertebræ, 6
sternum, differences in, 6, 7
skull, differences in, 8
general comparison, 7–8
of gorilla, 218–223
of gibbon, 276
Smithsonian Institution, Experiments at, 15 ff., 38
Snapshot, A unique, 264–265

Social traits and government
of chimpanzee, 99–105
of gorilla, 231 ff.
Soko, 270
Speech defined, 12
Speech of animals (see also *Monkeys, Speech of*, and *Chimpanzees, Speech of*)
author's interest in, 12
grounds of belief in, 12, 13
vocabularies limited, 13
can express what they conceive, 13, 23
development of interest, 14
Spider-monkey, 38
Stanley Pool, 216
Steckelman, Carl, African explorer, 216
Sternum (see *Skeleton*)
Stories of travelers and writers often untrue, 71–72, 235–236, 261–263, 267, 268, 273
Strohm, Mr. Adolph, trader at Gaboon, 154, 158
Sumatra, 274

Threadbare story, A, 262, 273
Tornado in the jungle, 79 ff.
Translations of native reports, Literal, 269, 270
Troglodytes, 267
Tyimba (village), 144

Under forest, The, 68
University of Toronto Collection, 249

Village pet, A
the children's playmate, 175–178
Village pet, A (*cont.*)
understood names and commands, 179
brought water and wood, 179–180
brought persons named, 180–181
price double that of a slave, 182
Vocabularies of animals (see *Speech of Animals; Monkeys, Speech of*, and *Chimpanzees, Speech of*)

Walker, Dr., revises Wilson's lexicon of native language, 216
Wallace, Mr. Alfred R., authority on orang, 275
Webber, Mr., keeper of ape at Bellevue
his success in training, 198
Wild visitors to the cage, 75 ff., 81–82, 186–190, 252–260
did not usually evince fear, 253
retreated in good order, 253, 255, 258
Moses frightens one away, 254
a gorilla beckons, 255
a narrow escape, 256–258
an exceptional opportunity, 258–259
a brave baby, 260
a gorilla takes his own photograph, 264–265
Wilson, Dr., first missionary at Gaboon
wrote lexicon of native language, 216
Wurmb, Baron, 267

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